

American

MARCH • 1950

FRUIT GROWER





(Model F-3, 122-inch wheelbase Express illustrated)



"My wife says we save about \$16 a month with our new Ford Truck!"

**says Louis P. Jensen
of Troy, New York**

"She keeps the budget in our family and knows just how much we're saving on gas, oil and upkeep since we changed to Ford. I agree—Ford Trucks certainly *do more per dollar!*"



"I picked Ford for power, but the money I'm saving has really convinced me it's the best all-around buy." (Loadomatic ignition saves gas; aluminum alloy pistons save oil; removable brake drums and engine-top setting save time and upkeep costs.)



"Never lets me down on any job! I use my Ford for every sort of work on my farm, in all kinds of weather." (To fit your job better—to save you money—a choice of over 175 Ford Truck models. From the 95-h.p. "Six" Pickup to the 145-h.p. "V-8" BIG JOB!)



"It's mighty good-looking... rides like a passenger car. The 'Million-Dollar' cab was good news to me, too!" (More good news for farmers is Ford's powerful, yet thrifty Six—the new 110-h.p. 254 cu. in. engine. It's engineered for heavy-duty farm use!)



"I knew they were Bonus-Built for extra strength, but I still can't get over how much less Ford Trucks cost to run!" (Find out yourself why Ford Trucks do more per dollar. Change to Ford like Louis Jensen did—see your Ford dealer this week!)

**Ford Trucks Cost Less
Because—**

**FORD TRUCKS
LAST LONGER**

Using latest registration data on
6,106,000 trucks, life insurance experts
prove Ford Trucks last longer!

Start Thinking About Scab, NOW!

In many areas, growers rely upon the complete Dow line for an all-season fruit protection schedule. They know that Dow's dependable materials for orchard use are formulated to do specific jobs well and to work together effectively.

"Mike" Sulfur (more than 95% sulfur of microscopic fineness) wets instantly, gives superior finish to fruit, gives extra thorough coverage against apple scab and brown rot. Where necessary, the addition of three pounds of lime per 100 gallons of water increases the efficiency of "Mike". Dow Dry Lime-Sulfur for preblossom spraying dissolves readily in cold water and is very effective.

Parathion-15%-Wettable and Ferradow

Parathion-15%-Wettable is a powerful insecticide formulation that has shown excellent results in control of mites, woolly aphid, mealy bugs and red-banded leaf roller. *Ferradow* is Dow's newest organic fungicide that has proved itself in leading orchard sections as an effective control of scab, brown rot and other fungus diseases. Ask your dealer or write to Dow for full information on these aids to better fruit.

"Mike" Sulfur and DOW DRY LIME-SULFUR

Agricultural Chemical Division

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN



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AND AGRICULTURE

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GRAIN AND SOIL FUMIGANTS • WOOD PRESERVATIVE

The NEW AQUA-JET BOOM

SPEEDIEST OF SPEED-SPRAYERS (AND MUCH LESS COSTLY)

Perhaps the most remarkable feature of the Aqua-Jet Boom is its ability to perform as well, if not better, than many fan or blower type sprayers. It has tractor seat control . . . so labor cost is less. It has no rotating or oscillating drives . . . so installation and upkeep is low. It fits your present sprayer . . . so you are not burdened with an excessive investment. It has safety, too; the kind that only 100% hydraulic operation gives (no roaring fans!). The individually adjustable Aqua-Jet heads outperform any nozzle you've ever seen in correct particle size, distance and wetting power.

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\$285⁰⁰ COMPLETE Ready to install

(f.o.b. San Jose)

Shipping Wght. 146 Lbs.

Includes special Hurst 3-way hydraulic control with tractor seat mounting bracket; high-pressure hose (with fittings) for harness; Aqua-Jet Boom with six spray heads, dual strainers, mounting bracket.



FITS YOUR PRESENT SPRAYER . . . if its tank is between 30" to 50" wide

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HURST

Send Coupon TODAY!

Hurst Industries, Inc.
San Jose, California

Please send me a copy of your NEW BULLETIN illustrating Aqua-Jet Nozzles and Aqua-Jet Booms. I understand this will not obligate me in any way.

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Address _____

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I am especially interested in:

- ☐ The Aqua-Jet Boom
☐ The Aqua-Jet Hand Hose Line Nozzle
☐ The Aqua-Jet Boom Nozzle only

The Aqua-Jet Nozzle is of the constant volume, high-velocity discharge type. It puts every bit of pump power into speed-spraying. Operated in multiples, the solid fan-shaped discharge of each nozzle tends to increase the reach. If your pump gives 20 g.p.m. at 500 p.s.i. you can handle an orchard of medium sized trees. At about 35 g.p.m. and 600 p.s.i. thirty-foot trees can be sprayed. Mixed long and short jet adjustments with all nozzles concentrated at one side of the boom creates a spray pattern that no blower can duplicate. Each nozzle and each boom arm has its own 55° ball-swivel-joint!

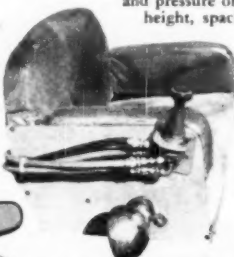
Adjustable IMPINGING JET
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HUR-106



Sprayers

all photos are unretouched



"The BOOM with the BUTTERFLY Pattern"

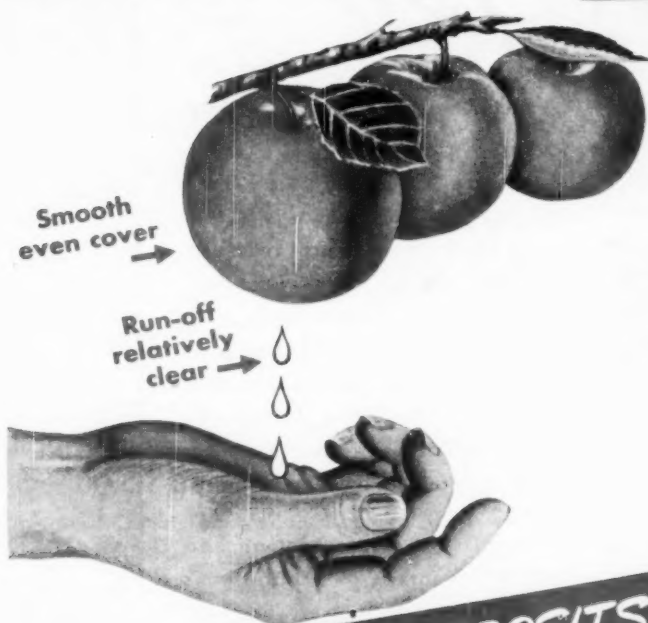
EITHER SIDE OF BOOM OPERATED SEPARATELY . . . OR BOTH TOGETHER

The quick acting 3-way hydraulic control valve is of exclusive Hurst design. Finger tip control on one lever puts the Aqua-Jet Boom through its 3 modes of operation and shut-off.

When ordering be sure to tell capacity and pressure of your sprayer . . . also height, spacing and type of trees.

**HURST
3-WAY
HYDRAULIC
CONTROL**

WATCH WHAT RUNS OFF



**And
You Know
How Much
Protection
You Have!**

For MAXIMUM DEPOSITS use



Smooth, unbroken spray covers on fruit and foliage mean more "money fruit" at picking time!

THE GOAL BEHIND EVERY General Chemical Spray Material is *to attain maximum deposits of protective toxicants on plant surfaces, with a minimum of run-off in the spray drip.*

IT'S JUST PLAIN common sense: the better the spray cover, the better the protection . . . the more chance you

have to grow cleaner, finer fruit.

THAT'S WHY YOU should demand only General Chemical Spray Materials—because this "Maximum Deposit Principle" is built right into every General Chemical insecticide and fungicide . . . and proven through research in the laboratory and in the orchard *before* it is offered to you.

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Offices in Agricultural Centers from Coast to Coast

"GENITOX"* DDT

"GENITHION"†
(Parathion)

LEAD ARSENATE
(Astringent & Stendard)

"Micro-Dritomic"* Sulfur
(for apple scab)

"Dritomic"* Sulfur
(for peach brown rot)

"Spraycop"*
(Copper Fungicide)

**Other Insecticides
and Fungicides**
(Organic and Inorganic)

*General Chemical Trade Mark

†Reg. U. S. Pat. Off.

As surely as spray-days come the D2 and D4 *GO!*



"Four-buckle" mud in this rolling apple orchard—yet dormant spray is applied as scheduled. Broad, sure-gripping tracks of "Caterpillar" Diesel Tractors don't wait on weather!

Some of the grades are steep; some of the ground uneven. But the D4 pulls the full 700-gallon sprayer; the D2, the 500-gallon one, (both power take-off rigs)—at the speed desired, anywhere in the orchard. And anytime. That's what traction means!

Pest-control is pretty much in your hands with this modern, all-weather power. So is weed-control, plus mastery over cover crop disking, brush-

hauling, snow-plowing, pond-building, tree-pulling.

And the "Caterpillar" Diesel Tractor that fits your orchard is built to give you unusual control over production costs, for a long, long time. The D4 at the left, for example, is the original "Caterpillar" Diesel Tractor purchased by Thomas S. Smith & Sons, Inc., Valley City, Illinois. It's still at work after 14 years of dependable duty in this owner's orchards!

• • •

Why miss the satisfaction and profit advantage of tending your orchard with this power? See your "Caterpillar" dealer about an early demonstration!

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



Pulling power take-off sprayers, the 14-year-old D4 burns only 1.8 gallons of fuel in 10 hours; the D2 uses only 1.5 gallons in that time. Small view shows C. C. Hatcher, Valley City, Illinois, orchard manager for Thomas S. Smith & Sons, Inc., owner of these outfits.

CATERPILLAR

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Parathion News[®]

EFFECTIVENESS OF NEW PARATHION INSECTICIDES ESTABLISHED BY INTENSIVE RESEARCH

Outstanding Fruit Protection Reported

Notable control of such fruit insects as pear psylla, mites, red-banded leaf roller, oriental fruit moth and plum curculio was established in one phase of the three-year program behind the development of THIOPHOS[®] Parathion, the remarkable ingredient of powerful new insecticides. In hundreds of test plots throughout the United States parathion insecticides have been applied to fruit crops, and the results have been as noted above. In addition to the insects mentioned above, parathion insecticides destroy leafhoppers, codling moths, budmoths, mealybugs and many other destructive pests.

Dosages ranging from ½ to 2 pounds (of 15% wettable powder) per 100 gallons of water, depending on location and pests, were used to achieve the fine record of results.



LUSH GROWTH of foliage and fruit, remarkably free from insect damage is seen in photograph taken in a test plot where THIOPHOS Parathion insecticides were applied.

Use Parathion Safely

Any insecticide toxic to insects is also hazardous to humans if used carelessly and in defiance of certain common-sense precautions.

These precautions are stated explicitly on every container of parathion insecticides. They must be read carefully and observed strictly to avoid accidents.

It is urged that work crews who are given parathion to apply be fully advised also of the necessity of observing these precautions.

Thiophos Parathion Insecticides made by National Manufacturers

Dust and wettable-powder formulations made from THIOPHOS Parathion are available from reputable manufacturers.

Weather, Timing, Method of Application Important Factors In Successful Use of Parathion

To profit fully from the efficiency of parathion as a pest killer, farmers and fruit growers are being urged by Federal and State agricultural experts to observe carefully the manufacturers' instructions for applying parathion to specific crops. Such factors as weather, timing in relation to the development of the crop and insects, and method of application are known to be just as important as the correct dosage in achieving best results. For this reason, users are advised to consult with local agricultural experts or manufacturers' representatives to be sure of getting the most complete pest control and crop protection with this remarkable insecticide.

Be sure to write for Growers' Manual on Parathion

AMERICAN Cyanamid COMPANY

Agricultural Chemicals Division

30-X ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Please send me Growers' Manual giving latest recommendations for using Parathion.

Name

Address

Farm News

FROM DU PONT



Six-Year Orchard Test Shows Cumulative Benefits of FERMATE On Fruit Yield and Quality

In a New York State apple orchard, six years of tests show that "Fermate" fungicide improved the yield of picked, scab-free fruit by 74% and increased the total yield 59%, as compared to "mild" sulfurs.

This cumulative test over six years shows the exceptional value of this effective organic fungicide. "Fermate" controls scab without injury to the foliage, and in applications at the time of blossom it improves fruit set over that permitted by harsher fungicides. Even in hot weather, "Fermate" does not produce leaf burn. As a result, the foliage grows to its fullest vigor and manufactures more food to grow a bigger crop of larger, finer apples.



On apples and pears, "Fermate" has the additional advantages of controlling black rot, sooty blotch and mildew, as well as cedar-apple rust. It is also exceptionally effective, as well as safe for control of brown rot of peaches, plums and cherries, grape

black rot, raspberry anthracnose and cranberry fruit rots. Many experiment stations recommend "Fermate" as a safe fungicide to use on sweet cherries for control of leaf spot and brown rot. Both sweet and sour cherries are sensitive to certain other fungicides in early spring, but "Fermate" provides excellent leaf spot control without danger of this cold weather damage.



For peaches, Du Pont "Zerlate" organic fungicide is the recommended control for brown rot, since its light-colored residue does not show on the fruit, yet protects it right through harvest and shipping.

Spray mixtures are easy to make with "Fermate." It is compatible with almost all other fruit spray materials. Since it can be used with summer oil, it fits well into the pear spray program for paylla control.



DU PONT CHEMICALS FOR THE FARM INCLUDE:

Fungicides: PARZATE* (Liquid and Dry), FERMATE*, ZERLATE*, Copper-A (Fixed Copper), SULFORON* and SULFORON*-X Wettable Sulfurs... Insecticides: DEEMATE* DDT, MARLATE* Methoxychlor, LEXONE* Benzene Hexachloride, KREHNITE* Dinitro Spray, EPN 300 Insecticide, Calcium Arsenate, Lead Arsenate... Weed and Brush Killers: AKKIMATE*, 2,4-D, TCA and 2,4,5-T... Also: Du Pont Cotton Dust, Du Pont Spreader Sticker, PARMONE* Fruit Drop Inhibitor, and many others. *See U. S. Pat. Off.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

NEW CONTROL FOR MITES:

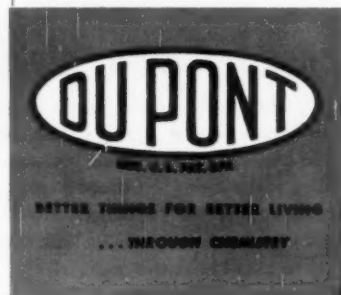


EPN 300 INSECTICIDE

Now fruit growers have a new and effective control for mites—Du Pont EPN 300 Insecticide. It not only cleans up mites but also gives long-lasting control.

Du Pont EPN 300 Insecticide controls many kinds of mites: European red mite, two-spotted mite, Pacific mite, Willamette mite and clover mite. It is excellent for use on apples, pears, prunes, plums and cherries. EPN 300 Insecticide is compatible with other commonly used pest control chemicals including "Fermate." It is formulated as a wettable powder, for ready use. Users are advised to take suitable precautions in handling this product as indicated on the label.

*To obtain "Fermate," EPN 300 Insecticide and other Du Pont agricultural chemicals, see your local dealer. Also ask him for free leaflets that give further details, or write to Du Pont, Grasselli Chemicals Dept., Wilmington 98, Delaware.



MARCH

1950

VOL. 70

No. 3

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On the cover this month is the Klondike strawberry which originated in 1901 in Independence, La. Klondike has been widely planted in the southern States but its offspring, Klamore, introduced in 1940, is probably better known. Photo by Paul Hadley.

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**WHEN IT'S
AN EXIDE
YOU START**

Irrigation News

WEATHER:

Make your own!

FROM ALUMINUM COMPANY OF AMERICA



VOL. 1 NO. 1

FRUIT EDITION • MARCH, 1950

Northwestern Fruit Growers Set Profit-Pace with Portable Sprinkler Irrigation

They're still pioneers up in the Washington and Oregon fruit country. Growers are making their own weather and harvesting some mighty nice profits. In both humid and dry areas, you'll find many of the most productive orchards equipped with portable aluminum sprinkler systems. Nearly half the leading growers of apples, peaches, pears and cherries use this modern method of supplementing nature's showers.

They report some astonishing results. Fruit yield is often doubled. Size and quality of fruit is improved. Harvests are hastened and marketed when prices are high. Frequently, added profits pay for an entire aluminum sprinkler system the first season. Then too, growers



are pleased with the gentle, uniform water distribution they get... even on steep slopes. No water is wasted. They like the light weight of aluminum pipe. It requires so little labor to move sprinklers from one setting to another.

Take a tip from the Northwest. Fruit growers everywhere can cash in on the advantages of portable sprinkler irrigation. It offers a proved, economical way to get profitable yields every year... whatever the weather.

IRRIGATION EXPERTS READY TO HELP YOU

Your portable sprinkler system will cost less and do a better job if you get the advice of qualified irrigation specialists right at the start. Many factors must be considered—crops, soil conditions, topography, availability of water, and so on. You can get reliable information from your county agent, your state agricultural college, or from recognized irrigation equipment suppliers.

COLLEGE REPORT RECOMMENDS ALUMINUM

For over three years, research chemists at State College of Washington, Pullman, Wash., have conducted experiments in the laboratory and in the field to check the relative corrosion resistance of various metals used for irrigation pipe. Their report, Bulletin 201, concludes: "The comparative strength and lightness of aluminum and its high resistance to general corrosion make it a most suitable material for use in portable sprinkler irrigation systems."

A FARMER ASKS: Can I Afford a Sprinkler System?

"Portable sprinkler irrigation looks fine," you say, "but can the average farmer afford it?" The answer is simple. In many cases, a sprinkler system pays for itself the first season. In times of drought, it can save crops which might be lost. It can hasten your harvest, enable you to sell when prices are high. It improves yield and product quality. Small wonder so many farmers say, "I couldn't afford not to have sprinkler irrigation!"



"SPRINKLINGS"

A 20-foot length of 3-inch Alcoa Aluminum irrigation pipe weighs only 11 pounds, 2 ounces—as against 32 pounds for steel.

Alcoa Aluminum irrigation pipe requires no painting or other protection from the weather.

The marking "63S-T6" on Alcoa irrigation pipe identifies a special aluminum alloy, with ample toughness to take hard knocks.

PICK
THE PIPE
THAT'S
PORTABLE!



LIGHTWEIGHT, LONG-LASTING

ALCOA

ALUMINUM IRRIGATION PIPE

Fertilizing Through Irrigation

You can save time and money by fertilizing and irrigating at the same time with a portable sprinkler system. Liquid fertilizer, containing all the essential elements, is mixed with the irrigation water through a connection at the suction side of the pump. This practice has produced excellent results on crops such as cabbage, cucumbers, greens, sweet corn and fruits.

Free Booklet Answers Many Questions About Irrigation

Would you like to know more about portable sprinkler irrigation systems? How they are making farms more profitable? What equipment is needed? How to install a system?

How much a system costs? Something about sources of water?

These and many other questions are answered in this 32-page book, "Portable Sprinkler Pipelines to Profit." It's free... mail the coupon today.



ALUMINUM COMPANY OF AMERICA
2176C Gulf Building Pittsburgh 19, Pa.
Please send me "Portable Sprinkler Pipelines to Profit".

Name _____

Address (or RFD No.) _____

City (or Town) _____

State _____

LETTERS TO THE EDITOR

Decreased Berry Yields

Dear Sir:

Being a subscriber to your magazine, I am writing you concerning a patch of ever-bearing strawberries which we have.

We fertilized the soil heavily with stable manure, worked it into the soil, gave the 1,200 plants plenty of cultivation and hoeing and two applications of nitrate of soda.

The plants threw two-thirds as many runners as a spring variety ordinarily produces. These plants bore around 200 quarts of berries, not very large size.

Last year 600 plants bore a heavier crop of better quality berries with less cultivation and fertilizing in the same field. Can you tell me what's wrong and what's to be done?

Union City, Pa. Harley C. Jones

The information is a bit fragmentary, but there are at least two possibilities: 1) Too high a nutritional level may have produced excessive foliage and runner plants. 2) Early running-out of strawberry beds is becoming more and more of a problem in the East. Pathologists believe strawberry yellows, and perhaps some other yet unidentified virus diseases, infect far more plantings than is commonly supposed. Reader Jones will be interested in the article on page 14 of this issue, "The Virus Problem in Berry Crops," by J. B. Demaree, which includes a discussion of strawberry yellows. —Ed.

For the Record

Dear Sir:

We want to thank you for the splendid article which appeared on page 20 of your January issue on the subject of the National Red Cherry Institute. In the second paragraph there was a slight inaccuracy.

The Institute was formed in 1947 at a meeting which was attended by growers and processors representing the industry from the States of Michigan, Wisconsin, Colorado, Ohio, New York, and Pennsylvania; and it was also established at this meeting that the States of Washington, Oregon, Utah, and West Virginia should be qualified for membership. In other words, the formation of the Institute had wider support than just the States of Michigan, Wisconsin, and New York, as was mentioned in your article.

Edgerton Hart

Pros and Cons of Price Supports

Gentlemen:

In your January 1950 issue in Letters to the Editor there is a letter from Mr. W. D. Plough. It should have been given full-page display prominence.

As Mr. Plough has so fearlessly stated the USDA is simply a grain and livestock controlled agency. One would believe that fruit growing is, basically at least, a part of agriculture. It is a product of the soil. However, in administering the USDA the "peanut politicians" have seen fit to completely ignore a very large part of agriculture known as "horticulture" and put it in the orphan child category.

The exploiters and pirates yell, "let the law of supply and demand prevail." The fact is that fruit is the only product in agriculture that is subject to the law of supply and demand. If we are living in an era when it seems to be necessary for the gov-

ernment to put a floor under grain and stock farming in order to maintain a stable income that would make it possible for them to buy the high cost products produced by union labor, why has such a large part of agriculture been completely ignored?

The fruit and processing industry represents in annual volume and invested capital nearly as great a part of agriculture as hogs, corn, and milk. The buyers and processors have for several years told the fruit grower what he must take or let his fruit rot; and, at the same time, the fruit grower has been shouldering his portion of taxes and high cost on everything he needs. What would happen to the grain and stock farmer and to dependent organized labor if the government should take the floor from under them, especially so with the storage of surplus crops as at present?

Whether we like or do not like the word subsidy, if we are living in an age when the economic balance must be stabilized by government, I think it high time that we fruit growers bury our scruples and start some hard punching.

Coloma, Mich.

H. E. Van Doren

Dear Sir:

I am much interested in the letter from Mr. Plough.

I do not approve of the government's plan of buying U.S. No. 1 apples or better. That leaves the seconds and culls for the grower to dispose of as best he can.

If the No. 2 and poorer grades could be kept off the market, I think the growers could market their No. 1 apples at a fair price. Every bushel of No. 2 apples or poorer that goes on the market takes the place of several bushels of No. 1 apples because they do not get repeat orders.

Chardon, Ohio

Jay M. Sage

Dear Sir:

Price supports were placed on the basic commodities for the benefit of the public at large. Let's face it. Fruit and fruit products just aren't basic commodities.

There is a bright side to the picture, however. Without price supports we will not be harnessed indefinitely to the marginal producers. As they pass on, we will be in a healthier economic condition than our subsidized neighbors.

Marshall, Mich.

J. R. Elmquist



Peaches and Politics

Dear Sir:

I am enclosing a snapshot of Salwey peach trees which were planted the year William H. Taft was inaugurated as President, 40 years ago. More than a dozen of these trees bore large crops of peaches this past season. It looks as if they might still be good when Robert A. Taft completes his second term in the White House.

Carrollton, Ohio

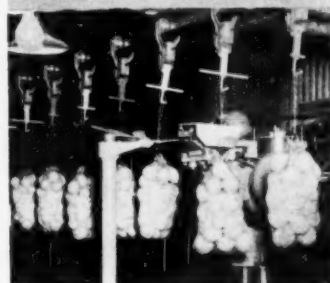
Wm. Kean

**BAGGED
FRUIT -
BOGGED
DOWN?**



... unload handling problems on

**Buschman
CABLE
TROLLEY CONVEYORS**



• Less "by hand" handling can reduce your packing costs 30% or more. Untouched from packers' table, 60 bags of fruit a minute are automatically unloaded at boxing table or shipping dock.

Bags on color-identified hooks (for up to 11 grades) trip off automatically wherever Buschman "tripper stations" are set. Buschman Cable Trolley Conveyor is low in cost, easily installed or changed for any size bagging operation.

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PORTABLE
CONVEYORS**



For handling of crates, cartons or baskets, Buschman Portable "Roll-or-Wheel" Conveyors...easy to set up, easy to change... the low cost solution to packing, warehousing and shipping problems.

**Buschman
Conveyors**

Representatives in principal cities, or write direct for descriptive literature.

THE E. W. BUSCHMAN COMPANY, INC.

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Here is the three-plow McCormick OS-6 orchard and grove tractor and a McCormick double-action disk harrow at work in an orchard.

Only *McCormick* Orchard and Grove Tractors Give You ALL of These Advanced Features

New double-disc brakes make possible short, skid-free turns. Together with a long swinging drawbar, disc brakes enable you to cultivate close to tree trunks, and to work between thickly-planted trees. These positive-acting brakes require only tiptoe pedal pressure because they are self energizing. Disc brakes are easy to adjust—have a large braking area that assures long life.

Five speeds forward. There is a speed for every job in the orchard or grove. A handy governor control puts many variations of these travel speeds at your fingertips.

Narrow wheel tread makes it easy to thread your way between closely planted trees. These ground-hugging tractors work under low-hanging branches without damaging

fruit or foliage. Low platform and seat protect driver.

2 styles . . . 2 sizes . . . your choice of power. McCormick orchard and grove tractors are available in partly or fully shielded styles . . . two and three-plow sizes . . . with gasoline or distillate engines. A Diesel engine also can be supplied for the partly shielded three-plow tractor.



FREE BOOKLET

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AN INSIDE LOOK AT THE SOIL

By C. L. W. SWANSON

Connecticut Agricultural Experiment Station

MOST PEOPLE when they think of soils visualize only the first six or eight inches, or the plow layer. Some only think of the surface. But soils have depth and their "insides" vary tremendously from soil to soil.

When you look at the soil to about a three-foot depth you soon realize that soils are not all alike. One sees that they are usually made up of three layers or horizons. Each layer has a color, structure, texture, and organic matter content different than that of the other horizons. The size, amount, and kinds of minerals and rocks vary among the layers.

Soil is made up of sand, silt, and clay plus organic matter. An average soil contains about 50 per cent air space which are the spaces between the soil particles. To give you some idea of the size of the various fractions I refer you to the accompanying drawing. On a comparative basis the largest sand fraction is no larger than the lead in a pencil. The clay fraction is much smaller, measuring four millionths of an inch and smaller.

Organic matter mostly made up of dead plant materials and some animal remains, is also found in varying sizes depending on how decomposed it is. The clay-size organic matter is called humus. Amounts of organic matter vary in soils, with the average being about three to five per cent.

To learn something useful about clays, one really needs to take an inside look at them. Only then can we find out what makes a soil "tick."

Clay is made up of extremely small minerals. Most of the clay minerals are particles ranging from one millionth to about eight millionths of an inch in size.

Clay and organic matter are the most important parts of the soil because these components are the active parts and very largely determine whether or not you have a good soil for the growing of crops.

The clay fraction has what is known as exchange capacity in soils. It is because of this exchange capacity that plants can grow. Such useful elements as calcium, potassium, magnesium, etc., are taken up by clay. When these elements are taken up by clays, it means that they will not be leached out of the soil. They are held in this exchange complex and are made available to plant roots as they are needed.

The mechanism of how this occurs can be explained rather simply. Clays are made up of minerals of several kinds. Basically there are two groups of these minerals. All of them are essentially platy.

Some of the clay minerals can expand and contract something like an accordion. They expand when

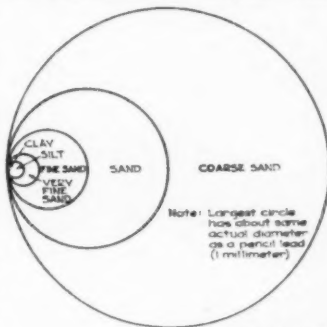
water is added and they contract when dried out. One group of clay minerals does not have this ability to expand or contract and remains stationary. We call this the kaolinite kind of clay minerals. The other major kind which takes up water and expands and contracts is called the montmorillonite type of mineral.

These are new words—kaolinite and montmorillonite. Soil scientists are using them now in telling about some of their experimental results.

The space between the plates of the kaolinite type of clay mineral is about 29 billionths of an inch but it does not have the ability to increase or decrease this space. The plate space in the montmorillonite type of clay minerals averages around 40 billionths of an inch and it can expand to about 80 billionths inch.

The diameters of the various elements are not all the same. They vary in size—some are larger than others. For example, the potassium ion is 10.6 billionths inch in diameter while the diameter of the calcium ion is about 8.5 billionths inch. It follows that if the plates of the clay mineral do not open wide enough ions cannot enter easily and be held from being leached out or used by the plant.

The montmorillonite type of clay mineral is the most useful in plant growth. Elements like calcium, magnesium, and potassium are small
(Continued on page 48)



Relative size of particles of sand, silt, and clay is shown in drawing (after Pike).



THE VIRUS PROBLEM IN BERRY CROPS

**Strawberry Yellows Already Is Causing
More Damage Than Is Commonly Realized**

By J. B. DEMAREE, U. S. Department of Agriculture

VIRUS DISEASES in berry plants are not different basically from those found in other woody plants. The infective agent inhabits all portions of the plant, but it cannot be seen with the ordinary type of microscope and its presence can be known only by its effect upon the living plant.

Virus diseases of berry plants are not transmitted by mechanical means, such as pruning or cultivating practices; neither are any of them transmitted through the medium of seed. All are transmitted by vegetative propagation. All are either known or suspected of being spread in berry plantations by the aid of insects feeding (by sucking) upon a diseased plant, then migrating to and feeding upon a healthy one. Insects that are capable of transmitting virus diseases are called vectors. Aphids, or plant lice, and leaf hoppers are the most common and efficient vectors associated with berry crop viruses.

So far as we know, each virus disease affecting berry crops is confined to a particular kind of plant or to a group of closely related species. Consequently, although the agents causing virus diseases in our various berry crops are fundamentally similar, they nevertheless differ in some respects and are considered separate entities.

Raspberry Viruses

In the early part of this century, the once thriving raspberry industry in eastern United States declined rapidly. Fields that previously yielded good crops declined in vigor and productivity, resulting in the discontinuance of the industry in some of the older raspberry-growing sections.

The cause of this unproductiveness was at first attributed to unfavorable soil and climatic conditions and the trouble was referred to generally as running-out of varieties, a legendary term applied to similar and then mysterious maladies of potato, tobacco, and other plants. The trouble was later found to be due to an infectious virus disease. In fact, several virus diseases entered into this raspberry

decline complex. Some half dozen are now recognized—namely, yellow mosaic, red mosaic, two types of leaf curl, mild streak, and severe streak.

Prior to 1920, surveys showed that some plantings of most varieties were lightly infected. These were carefully inspected and all diseased plants were removed for the following two or three years. By this means a stock of plants relatively free of virus diseases was developed, and from those fields propagations were made for replacement of the diseased stock throughout the country.

Diagnostic symptoms of the two forms of mosaic are similar in many ways but distinct enough so that they may be separated by inspectors and others well informed, but not easily by the novice. Many factors influence the symptom complex. Vigor of plants, varieties grown, sections

Strawberry plants infected with "multiplier plant" disease have short stolons; new plants root near parent.



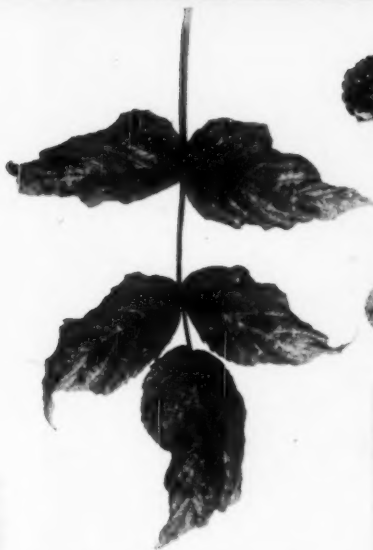
The Blakemore strawberry plants at top are healthy; those above, yellows infected.

where grown, aphid population, time of year, and weather conditions either suppress symptoms or accentuate them. Under certain conditions a red variety infected with mosaic may show only slight symptoms; under

other conditions the leaves will be yellowish, speckled, mottled with yellow and light green blotches, and the entire plant will be dwarfed. Including the above symptoms, the cane tips of black varieties will be



Edges of leaflets turn downward, curl, or twist sometimes forming a cylinder when strawberries are infected with leaf curl.



Mosaic in red raspberries causes mottling.

very slowly, even when subjected to extreme exposure. This is due to some inherent property in these varieties which makes them distasteful to the insect carrier of the virus, and the insects either will not feed upon those varieties or, if they do the population increases slowly.

Curl, another virus disease of raspberries, was much more prevalent in Ohio and some other sections 40 years ago than now. At the present time, in well-cared-for plantings, only scattered plants may be found infected with this disease.

Symptoms are well defined and therefore the disease lends itself to roguing. Signs of new infections may show the first season on individual cane tips. The following year the entire bush will be somewhat dwarfed. By the third year all canes are dwarfed to 12 inches or less. After the first year all leaves are abnormal. They are darker in color than healthy ones, sometimes have a bronze or a glossy appearance, and are curled downward along the margin. The canes are stiff, brittle, and frequently do not branch. Fruits are worthless after the first year of infection. The disease is spread in fields by a small aphid different from the one that transmits the mosaic diseases.

Still a third disease of the virus type in our black raspberry plantings is known as streak. There are two forms, one called "severe streak" and the other "mild streak." Forty years ago severe streak was prevalent in New York and Michigan and caused damage to raspberries in northern Ohio; but it is rarely seen now. With severe streak infected bushes are considerably dwarfed; the leaves may show slight indefinite



The Cumberland raspberry cluster at left is from a normal plant, that at right from a plant infected with mild streak. Berries are smaller, have no gloss.

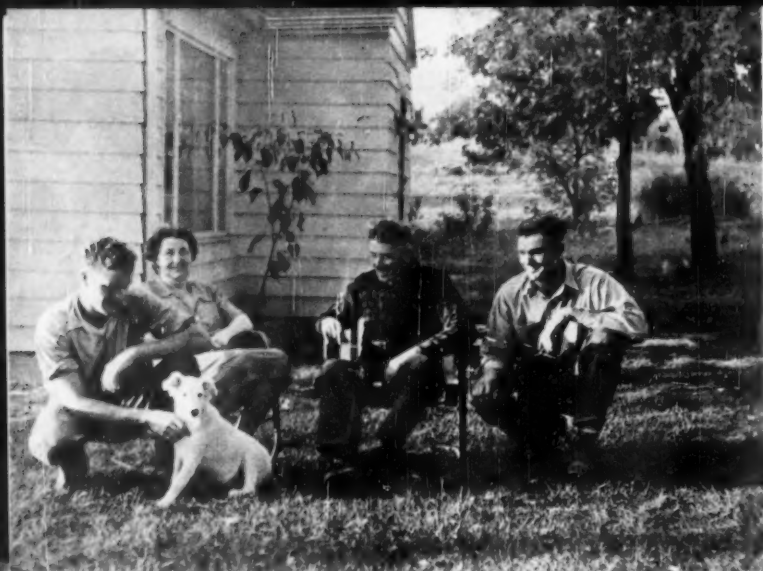
mottling; the tips of the leaflets turn downward, forming a hook, or the leaflets may become twisted in the shape of a loose cylinder. Cane tips seldom root to form tip plants; consequently, the disease tends to eliminate itself by non-propagation of infected plants.

The name "streak" is obtained from a fairly constant character of longitudinal dark blue stripes on the surface of the new canes near the ground.

Mild streak is undoubtedly the most important virus disease in black raspberries, at least in eastern United States, at the present time. It has been spreading for a number of years and it is now not unusual to find plantings with 25, 50, or even 100 per cent infection in western Maryland, western Pennsylvania, and in the Finger Lakes section of New York.

The disease has about the same importance now that the mosaics, curl, and severe streak had during the first two decades of this century. The increase of this disease coincident with the decline of other virus diseases of raspberries is due to the less conspicuous manifestations of symptoms in the case of mild streak. Infected plants show no dwarfing

(Continued on page 36)



The Dempsey family, Oak Hill, Jackson County, Ohio, enjoy their front lawn after a busy day in the orchard. Left to right—Dale, Mrs. Dempsey, Estel Dempsey, and Horton.

THEIRS IS A FAMILY PROJECT

The Common-Sense Philosophy of Estel Dempsey Has Made His Fruit Growing Enterprise a Successful Family Affair

By **ELDON S. BANTA**

THERE is but one good reason for looking into past experience, and that is to secure a firmer foothold for another step forward.

That, in essence, has been the philosophy of Estel Dempsey, one of Ohio's top-ranking fruit growers. He and Mrs. Dempsey began their enterprise in 1927 when they settled on their 112-acre farm which stretches over the hills of southern Jackson County. That spring they planted 60 of those rolling acres to apples, with the hope that some day these acres would provide them with a good livelihood and also help defray college expenses for their two little boys some 20 years hence.

In fact, so confident were they of the future that they chose the name Horton-Dale Fruit Farms for their homestead.

The parents hoped their second child would be another boy. If so, his name was to be Dale. Fortunately, events turned out as planned, and the name of the homestead was able to stay as Horton-Dale Fruit Farms, thus incorporating the names of the two sons, Horton and Dale.

During the early years of their orchard operations, the Dempseys kept a herd of dairy cattle to provide an income until the orchard would come into profitable production. The boys were encouraged to take part in farm operations but by no means were they forced to make decisions as to

their future coincide with dad's. That was a choice each had to make for himself. Dad and mother gave them an interest in the business. If they wanted to continue, well and good; if not, they could choose an occupation or profession to their liking.

Now, boys don't like to work for nothing, even at home, and Estel Dempsey, realizing this, paid the boys while they were young a small weekly "salary" for their help around the orchard, packing house, and dairy barns. The pay wasn't much, but it was enough to make a couple of husky boys feel interested in working along with dad. Those were tough times, too—depression years—but it was worth a small sacrifice to help cultivate the interest of two sons. Also, it was good experience for them to have money of their own to manage. Who knew but what they might take over the management of Horton-Dale Fruit Farms some day?

Have Horton and Dale done this? Not quite, for both must first finish their courses at Ohio State University. The war caught them just out of high school and delayed their going to college. Horton now is about to begin his last year in horticulture and Dale is continuing his major in animal husbandry.

Horton is 25 and Dale 23 years old.

During the last few years Estel Dempsey has paid his sons each \$100 per month salary when they work full time on the farms, and \$50 per month while they are in college. Both are now married and, except while in school, live on the farms.

Now to go back and bring the farms up-to-date. When the orchard began to bear heavily, it became almost impossible to operate the dairy along with it, since it required too much labor. It had to be either all

(Continued on page 46)



The Dempseys inspect a new type of half bushel face and fill apple carton, made by Fort Wayne (Ind.) Corrugated Box Co., which they used in 1949 with excellent results.



Hiley trees have a medium chilling requirement and growth was nearly normal though delayed last spring at Fort Valley, Ga.



Early-Red-Fre leaf buds have a very high chilling requirement—1,150 hours. Photo was taken at Fort Valley, April 18, 1949.

PROLONGED DORMANCY A SOUTHERN PROBLEM OF PEACHES

By J. H. WEINBERGER, U. S. Department of Agriculture

TO THE NORTHERN peach grower, who is concerned about low temperatures killing peach buds in the winter, the idea that a peach grower should worry about the lack of low temperatures may seem strange. Yet such is the case along the southern border of commercial peach growing. Peach growers in eastern South Carolina, south-central Georgia, and on through Texas into southern California watch the winter temperatures with concern, fearful that they may be too high and may result in prolonged dormancy trouble for peaches.

When peach trees go into dormancy in the fall they are in a condition called a rest period. While in this rest the buds cannot grow even though temperatures are favorable for growth. As an illustration, peach twigs brought into the house in fall and early winter will not push out their buds. If they are brought into warmth in late January, the buds can readily be forced into bloom. Their rest period has been broken by exposure to cold weather.

All peaches need a certain amount of chilling to break the rest period and permit normal bud development. Temperatures of 45° F. or lower supply this necessary chilling. Different varieties have their own chilling needs, but 1,000 hours of below 45° F. temperature before February 15 is sufficient for most varieties.

Sometimes important peach growing sections do not get that much chilling. Then nature is upset. It happened in the southeastern States last

year following the warmest winter in 17 years. At Fort Valley, Ga., in 1949 the accumulation of hours of chilling by February 15 was only 669 hours. This amount was insufficient for any of the important commercial varieties and prolonged dormancy resulted.

All varieties suffered seriously except those requiring around 750 hours of chilling, such as Hiley and Southland. Even with them blossoming was delayed, for the same varieties grown 75 miles to the north blossomed two weeks earlier than at Fort Valley. Usually the reverse happens, and blossoming at Fort Valley is five or six days earlier.

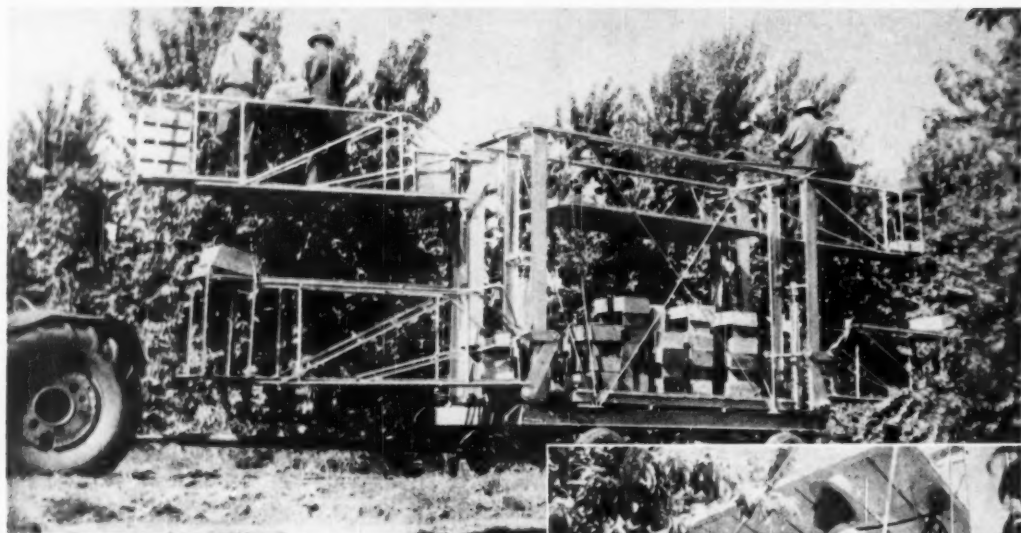
The opening of buds was irregular. The first open blossoms were seen on the Hiley variety at Fort Valley on February 1, but full bloom did not occur until seven weeks later—March 23. A newly opened blossom might have as a neighbor a walnut-size peach. Leaf development was nearly normal for this variety, but also was delayed.

Other varieties were more delayed and more irregular in their development, according to their greater chilling needs. Elberta trees have a medium-high chilling requirement. They blossomed March 27, but as late as

(Continued on page 30)



Elberta trees at Fort Valley suffered from prolonged dormancy in 1949. Photo taken May 4. Elberta leaf buds need more chilling than flower buds.



LOOK! NO LADDERS!!

By F. HAL HIGGINS



Top—Merrill Brothers' Iron Monkey at the edge of their peach orchard. Above—C. A. Merrill on the "Monkey."

AFTER three years of development during both wet and dry seasons in their own peach orchards near Bakersfield, Calif., Merrill Brothers have proved it is possible with the machine they have designed to eliminate the costly ladder labor in orchards and stay in business in a post-war price era.

The Merrill orchard machine, called the "Iron Monkey," is ready to go into production and be fitted into commercial orchard and grove operations to cut costs drastically when used by trained crews. The Merrills, however, do not want to get into the manufacturing end, being peach growers for some 20-odd years of uphill work in carving a farm from the desert and developing it via irrigation and long, hard work.

"It was back in 1913 when my brother, W. D. Merrill, and I decided to buy land to get out in the country after 28 years in books, stationery, hardware, retail oil, iron and steel rolling mill, and machine shop die and tool maker," said C. A. Merrill recently. "Brother was the skilled machine-shop man. I had started as time-keeper in father's steel business.

"We bought a 1,100-acre block of

A chapter in the life of a down-to-earth grower who carved out an orchard from the California desert.

land in Kern County. It was little more than a raw desert but we moved there from Los Angeles the week of Thanksgiving, 1913. For power and equipment to clear that desert land we had a Buffalo Pitts gasoline tractor and plow. We built a big brush rake to clear the land. We made this rake of $2\frac{1}{2}$ x $\frac{3}{4}$ -inch spikes set 9 inches apart in 2x12-inch planks. It ripped out the brush. To operate it, one of us would stand on the tail and step off to permit it to dump the brush.

"The tractor had no speed and broke down by 1914. We then bought a Holt 30, the model with the wheel in front. Hitched to a Spaulding-Robbins disk plow, we got the land cleared and plowed. In 1915, we put in a rice crop. One season of rice was enough and we went to alfalfa for the next few years.

"In 1917, I went into the U. S. Army for a year and a half, my brother and father running the ranch.

That year necessity mothered an invention that if not the first in the field was certainly the first of which we knew. It was the field baler made from an International Harvester baling press pulled from shock to shock by a team of horses as we baled the hay by pitching the shocks into the baler at each pause of the team. This baler enabled us to put up hay ourselves instead of hiring seven men to help us bale as we had been doing.

"By 1923 the hay press manufacturers started bringing out the Thresher press. We got the dealership in 1923 and sold two carloads of this type press, from the Imperial Valley to Kern County.

"It was in the same year—1923—that we set out our first peach trees in our alfalfa field—eight acres of Hale and Miller varieties. We had to learn the hard way about the Hale being sterile. It was when I took bloom from the Miller's Late and scattered it over the Hale trees that we began getting big Hales instead of the small ones such as we had grown in previous years. By 1929, we increased our peach acreage to 55, including Mayflower for earliest and Miller's Late

(Continued on page 32)



NATIONWIDE FRUITS



BERRIES

● **The resistance** of cultivated blueberries to spring frosts seems to vary greatly according to the variety. At the Massachusetts Experiment Station in Amherst last spring, a below-freezing temperature of 21° F. resulted in bud damage of from 10 to 74 per cent in a 15 to 17-year-old planting. Of the nine varieties in the planting, Concord and Rubel suffered the least bud damage, Wareham the greatest. In a three to four-year-old planting of Rubel and Concord and 10 USDA selections, Rubel and Concord again had a low percentage of bud injury; however, one USDA selection—GN-87—was even somewhat more resistant.

● **The first cranberry varieties** ever to have resulted from fruit breeding work have been announced by the U.S. Department of Agriculture and the experiment stations of New Jersey and Massachusetts.

Known as Wilcox, Stevens, and Beckwith, the three new varieties have been named for plant scientists whose studies have contributed to the improvement of the cranberry crop.

The Wilcox, according to the USDA, shows high resistance to feeding by leaf hopper, the insect that spreads the false blossom virus. The Stevens produces berries which have unusually good gloss and color and are resistant to breakdown. Berries of the Beckwith are borne high on long uprights, which makes them easy to harvest. Beckwith rated highest in flavor tests of sauce made from the new and from well-known varieties.

The Wilcox ripens just after Labor Day, the Stevens about three weeks later, and the Beckwith early in October.

● **Land intended** for strawberries should be well prepared and soft at the time of transplanting, cautions the Virginia Truck Experiment Station. This will guarantee proper set-

ting of the plants, with the roots in a straight up and down position, by even the most careless field hand, and strong plants and the production of runners will result.

In Virginia experiments, plants set carelessly about an inch below the surface of the soil with the roots running parallel to the soil surface were no larger in September than when set in the field in the spring, and no runner plants were produced.

The removal of blossoms and fruit from newly set strawberries also results in sturdier and quicker growth of the plants than if the fruit is left to ripen. Strong plants, Virginia experiments have shown, are better able to withstand unfavorable growing conditions during the heat and drought of the summer months.

NUTS

● **Nanking, Meiling, and Kuling** are three new varieties of blight-resistant chestnut recently released by the USDA. As their names indicate, they are of Chinese origin, having been grown from seed introduced from China in 1936.

Trees of these new Chinese varieties are productive, a 10-year-old tree bearing up to 100 pounds of large, sweet-flavored nuts.

Tested thus far only in the Southeast, it is not yet known whether the new varieties will be adapted farther North.

PEACHES

● **For control of brown rot** of peaches, it's the early blossom sprays that will prove effective, reports John C. Dunegan, USDA plant scientist. Sulfur sprays—at least four of them—applied every three days during blossoming beginning with the first bloom, will hold blight in the blossoms to a minimum, thus reducing brown rot in the peach crop.

The fungus that causes fruit rot at harvest shows up in the orchard early in the spring and forms spores that cause blossom blight. The gum developed as a result of the spore attack sticks the blighted blossoms to the twigs where spores continue to be produced throughout the season. If the weather is humid, these spores become a source of infection to healthy peaches in the orchard.

The value of the early sprays is shown by USDA reports of studies of four orchards just before harvest last year. One blighted blossom to about every 200 peaches was found in an orchard where four applications were made; four blighted blossoms to every 200 peaches where two blossom sprays were applied; 20 blighted blossoms to every 200 peaches in the orchard sprayed only once; and 100 blighted blossoms to every 200 peaches in the orchard that received no sprays during the blossom period. The entire crop in the last orchard was lost from brown rot.

APPLES

● **The girdling of Northern Spy** trees is one way of inducing earlier bearing in this variety which frequently does not produce a profitable crop until 12 to 15 or even 18 years of age. When done close to the normal bearing age, girdling also has been found to correct the biennial bearing habit of this variety.

In Michigan experiments, Northern Spy trees girdled in their eighth growing year produced an average crop the following year of 170 bushels per acre. Girdling again in their ninth growing year resulted in the production of only 29 bushels per acre the year following.

Girdling of the same trees in their eleventh growing year again resulted in a good crop the following year, 459 bushels being produced compared with 89 bushels per acre for ungirdled check trees. Production was small in the thirteenth year but increased to over 800 bushels per acre in the fourteenth year.

The tendency to regular bearing was not brought about until after the trees were girdled in the eleventh growing year. This would indicate that the closer to their normal bearing age the girdling is done the more likely it will be successful in bringing the trees into regular bearing.

Girdling consists of removing, prior to the period of fruit bud formation, a strip of bark one-eighth inch wide, cut to the depth of the wood and completely encircling the trunk, at a height of 12 inches above the ground. The wound is protected with a non-injurious grafting compound.



• Century-Old Societies Hold Joint Meeting • United Effort Sells Bumper Crop

OHIO—The Ohio State Horticultural Society was host to the American Pomological Society in Columbus on February 8-10. Thus two of the oldest societies in the fruit industry met in joint convention, for this marked the 103rd annual meeting of the Ohio society and the 102nd of the APS.

Howard Wells, president of the Ohio society, and John T. Bregger, president of the APS, presided. The six speakers provided by the APS included Mr. Bregger, South Carolina; W. D. Armstrong, Kentucky, secretary; Paul H. Shepard, Missouri; M. J. Dorsey, Illinois; Stanley Johnston and H. B. Tukey, Michigan.

Other out-of-State speakers were Edwin Gould, well-known West Virginia entomologist; William Rooker, Winchester, Va., fruit processor; M. E. Buckman, Sodas, N. Y., fruit grower; and L. J. Doud, past president of the Indiana society. Horticulturists, entomologists, and pathologists of Ohio State University and the experiment station, helped to round out the speaking program.

Grower interest in the meeting was especially keen, 22 fruitmen taking an active part in a program designed to give special attention to marketing and processing.

The lively discussions resulting from the panel on marketing fruit the wholesale way and marketing fruit the retail way, in which six of the growers participated, are an indication of the keen interest growers have in this vital subject. The growers seemed to be no less interested in the panel discussion on small fruits, also conducted by growers.

The Ohio apple market for the 1949-50 season has been depressed. Some of the larger growers with good wholesale outlets had disposed of most of their crops by convention time; others still had considerable holdings in storage. There appeared to be great differences in the availability of some of the large chain store outlets. Most of the smaller growers with crops of 10,000 bushels or less find most of these outlets closed to them. The orchards with good retail outlets direct from the storage seemed to be in the best shape of all.

Quite noticeable at the meeting was the greater optimism of growers with fruits to sell other than apples. Ohio's fruit, even the apple crop, could be easily consumed within the State. Better methods of grading, packing, and merchandising are matters uppermost in the minds of most Ohio growers.

Attendance at the meetings totaled over 500. One hundred ladies were present and many of them attended every session. Reports of the meetings will be published by each society for their respective memberships.

The Ohio society will hold its 1951 convention in Cincinnati on February 14-16. Tom White of Chardon was elected president of the Ohio society and John T. Bregger of Clemson, S. C., president of the APS. The respective secretaries are C. W. Ellenwood, Wooster, and W. D. Armstrong, Princeton, Ky.

Walter Zoschke, prominent Ottawa County grower, died recently. Mr. Zoschke was

one of the 10 growers who in 1949 scored better than 99 per cent clean fruit in Ohio's Honor Group of orchards.—C. W. Ellenwood, Sec'y, Wooster.

MASSACHUSETTS—The death of Baron Russell Baker, 75, of Plymouth, recently, ended a half century of distinguished leadership in the New England cranberry industry. Mr. Baker had been one of the nation's largest cranberry growers. He began growing cranberries in 1898 with two-thirds of an acre. By 1949 his holdings had increased to approximately 260 acres. Mr. Baker was a charter member of the American Cranberry Exchange and served as a director for more than a quarter century. He also was a charter member and former president of the New England Cranberry Sales Co.

CALIFORNIA—Wilson F. Parker, owner-manager of Los Rios Rancho, is the biggest grower in Oak Glen, a 500-acre Rome Beauty area in south San Bernardino County. Parker is one of nine growers who normally produce about a quarter million bushels of apples. Before the war a lot of those apples were exported.

Last fall Parker's outlook wasn't any brighter than that of other growers who had a bumper crop of apples—but Parker's bright ideas not only carried his bumper crop through a successful season but carried that of his neighbors along too.

Parker reasoned that mile-high Oak Glen had something more than good apples. For homesick easterners, it had the rolling landscape, the picturesque barns and sheds, the brilliant fall colors of maple and sycamore, and the smell of oak leaf mold and freshly picked apples. He decided these things were worth marketing.

He outlined his ideas to a recently-retired country newspaperman, Wilson McKenney. The growers would assess themselves two cents a box for an advertising and publicity campaign. Copy would be slanted to the southern California resident who could be persuaded that a motoring trip to Oak Glen would be a delightful Sunday excursion. Apples would be mentioned only indirectly.

The newsman sketched a road map, included descriptive copy, and had 10,000 of the maps printed for distribution purposes. He gained the co-operation of Nelson McIninch, KFI Farm Hour announcer, and residents of Los Angeles learned about Oak Glen apples over the air just as the picking season was beginning. The road map was timed to appear in southern California newspapers during the same period.

Sunday traffic in the Oak Glen area immediately began to pick up. The third Sunday some of the smaller growers who had underestimated sales at their roadside stands sold out in midafternoon—the fruit was sold at retail prices—and had to send out picking crews to supply the demand.

Toward the end of the harvest, unseasonable weather caused apples to drop like hail. Estimating a 15 per cent loss, growers ruefully called off the publicity. But they were over the hump.

The co-operation of merchants and banks in nearby Redlands contributed materially to the success of the campaign, for they featured apples in their window displays and distributed maps. A haberdashery bought a half page in the local daily to promote the apple sale. A 400-box display, entered in the county fair at nearby Hemet, not only netted valuable publicity but the growers won over \$500 in cash premiums. Delivering boxes of choice apples to newspaper editors and radio men brought effective results.

Less than \$300 was spent in newspaper advertising, none for radio time. But the



SMILES OF SUCCESS! Wilson F. Parker of Yucalpa, Calif., holds a Rome beauty while partner E. C. Harrell smiles his approval. The "pusher" is Wilson McKenney, retired newspaperman, who handled publicity campaign which sold Oak Glen's bumper crop.

AMERICAN FRUIT GROWER

space used for publicity, especially the automotive tours in Los Angeles metropolitan papers, would have cost over \$1,500 if paid for at regular advertising rates.

Parker had a right to be pleased with the success of his idea, for less than 40 per cent of the original assessment had been spent, the crop had been sold at profitable prices, and the growers were united for the first time in their common interest.

MARYLAND—With spring-like weather, the Maryland State Horticultural Society opened its annual meeting, with record attendance during the sessions, the audience representing not only Maryland but several of the neighboring States. There was a note of optimism, in spite of a sluggish market and uncertain days ahead.

The recent State survey of orchards was found to be an excellent round-up of tree population, ages, and varieties, all graphically shown in easy-to-read charts.

The uses of the newer urea sprays on apple foliage were shown to have their benefits, mainly as a way of reducing labor costs of applying nitrogen fertilizer for quick action and not affecting fruit color, ripening, or softness. Peaches showed no response to these sprays.

Various ways of cutting orchard costs were discussed and the opinions were that growers should not change to concentrate sprays and mist machines unless their trees were large enough to require 12 gallons of spray. Also, since there was no chance of reducing the number of spray applications and labor was more of a factor than spray material costs, it was best to consider improving time, method, and thoroughness of application of sprays.

There is some possibility of cutting down on the use of fertilizer and of planting native cover crops on a year-to-year basis, but growers should not neglect the long-time objective of improving soil fertility.

The cracking of Stayman apples was surveyed by visits and questionnaires and the speaker could find no definite causes. Possibly high rainfall and poor fruit finish were factors and it was pointed out that perhaps scab control prevented some degree of cracking. Mulching under trees was considered beneficial in reducing this trouble to a minimum.

The use of Elgetol as a ground spray followed by mercury sprays at pre-blossom and petal-fall showed great promise as a control for apple scab. It was again emphasized that several sprays during the pink stage of peaches is an excellent control for peach brown rot.

Work was reported from Delaware showing that ventilation of peach containers effected quicker cooling and better control of rot in transit. Also rapid precooling of peaches cut rot infection to almost no loss in transit, even though there was a lapse of several days between tree and market and some of the shipments were almost soft-ripe at time of loading.

The use of phenothiazine spray was reported as giving good control of codling moth with considerable fungicidal value, also excellent leaf color and texture. The material has also controlled insects not affected by DDT and has not upset the balance of parasites beneficial in control of aphids, scales, and mites.

The final discussions centered upon the market demands and in general many of the apples that are reaching the market were weighed in the balance and found woefully wanting, with such faults as poor color, over-facing, too much size variation, heavy bruising, and no sustained supply of good

(Continued on page 41)

MARKETING

PEACH CROP "GUESSTIMATE"

• A 70 million bushel peach crop was forecast at the annual meeting of the National Peach Council, February 20-22, in Washington, D.C. The cold winter in the Northwest, most severe since 1919, already has taken its toll of the soft fruit crop, according to delegates from the State of Washington. Temperatures of 40 below zero were recorded in Spokane and from 18 to 25 below in the Yakima soft fruit belt on February 1. It is expected that there will be no commercial crop of peaches or apricots in Washington or Idaho.

While the Northwest has been buffeted by storm, the Southeast has enjoyed mild weather which has brought peach orchards into bloom at an early date. South Carolina reported many orchards in bloom on February 20 and growers were concerned over the possibility of spring frosts. In Georgia, insufficient cold to break dormancy may bring on a situation similar to 1949 when many orchards failed to bloom.

The crop "guesstimate" as of February 20 showed 33 million bushels for California (23 million clingstone and 10 million freestone), 7 million for South Carolina, 4 million for Georgia, 3.5 million for Michigan, and about 2 million each for Pennsylvania, Arkansas, and Colorado.

• Retiring president, Grant Merrill, Red Bluff, Calif., called for a four-point industry program for 1950. His program included education of retailer organizations to help move seasonal surpluses, education of the middleman so that he will handle riper peaches, taking advantage of funds available from the Federal government to move surpluses, and exploration of the possibilities of marketing agreements.

The need was stressed for delivery of a riper peach to the consumer. California delegates pointed out that maturity standards under the marketing agreements for out-of-state shipment have been stepped up with successful results and that action is now underway to put peaches shipped within the State under marketing agreement.

Eastern growers stated that shipment of tree-ripe peaches is difficult and nearly impossible some seasons because of weather conditions favorable for brown rot and curculio.

• In a significant talk on the supply of peaches and competing fruits, Porter R. Taylor of the American Farm Bureau Federation stated that peach production is at a high level and is steadily rising. The greatest volume sold in past years, he said, has been about 45 million bushels in fresh form and 35 million for processing. He said "with the addition of 6 million bushels for farm use, the present total outlet for all peaches without regard to producer prices is apparently about 86 million bushels." The peach industry must increase fresh consumption, he stated, to keep ahead of larger production.

• Resolutions passed by the council included opposition to Secretary of Agriculture Charles F. Brannan's farm plan, support of The Great Atlantic & Pacific Tea Company in its litigation with the Department of Justice, a request for elimination of communication and transportation taxes, and a request for the PMA to continue to study grade requirements for green and immature peaches.

New president of the council is Oscar W. Jaynes, Palisade, Colo., with Frank T. Street, Henderson, Ky., first vice president and Stanley Fulton, Hancock, Md., second vice president. Secretary-treasurer is M. J. Dorsey, 1502 S. Lincoln Ave., Urbana, Ill.

TRUCKS & RAILROADS

• To cut rail costs, the International Apple Association, the National League, and the United Fresh Fruit & Vegetable Association in 1949 formed a contact committee to negotiate with the railroads. Pointing out that the tonnage of fresh fruit and vegetables loaded by railroads has dropped from 76 per cent in 1918 to 54 per cent in 1948, Samuel Fraser of IAA, during a meeting in January with traffic executives of the railroads, emphasized the seriousness of competition from trucks.

The committee presented three reasons for a voluntary reduction of rates by the railroads: 1) Truck competition may drive auction and other large markets away from railroad terminals, forcing new capital investments and disruption of present marketing facilities. 2) Commodities for which rates have been reduced have shown a rapid return to rail from truck. 3) Rail transportation permits more orderly marketing.

Now... feed your apple crop

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FERTILIZER COMPOUND

SPRAY NITROGEN

*through
the leaves!*

The new and better way to feed nitrogen to apple trees is to spray Du Pont "NuGreen" on the foliage. It improves fruit set, makes bigger fruit with better color and improves tree growth. It's not only a more exact and controllable way to supply nitrogen to your orchard, but it also saves labor at every step of the job.

"NuGreen" is concentrated, 44% nitrogen. That means less work to haul or handle it. And to apply it, all you do is dump "NuGreen" in the tank with regular spray mixtures.

Foliage absorbs "NuGreen" quickly. No worry about rain carrying it away or dry weather slowing down its availability. Properly timed sprays supply nitrogen exactly when trees need it.

OTHER CROPS—Preliminary trials indicate possibilities for spray applications of "NuGreen" to other deciduous fruits, berries and small fruits, truck crops, and even certain field crops. Recommendations for these other uses will be made as soon as thoroughly proved procedures are available.

NUGREEN for Top Dressing!

"NuGreen" is excellent to apply as top-dressing nitrogen fertilizer direct to the ground. Also ideal to use in irrigation water. It dissolves readily yet resists leaching, is quickly available to crops and stays available when plants need it most.

How to use NuGREEN. Be sure to ask your dealer for booklets that give details including proper concentrations and timing. Get a copy of "Du Pont 'NuGreen' for Apples" from your dealer today or write to Du Pont, Nitrogen Products Section, Wilmington 98, Delaware.

Apple Growers Report These Advantages in NuGREEN

- **Save labor**—Less material to handle, and you apply it in your regular spray mixtures.
- **Improve fruit set**—Sprays can be timed to provide a better crop of good-sized fruit.
- **Control color, size**—Permits feeding to the exact needs of the crop.
- **Get better terminal growth** and fruit bud formation with fewer pounds of nitrogen.
- **No other nitrogen needed**—Three or four spray applications can do the entire job for apples.
- **No waste**—Absorbed quickly by foliage.
- **No undesirable residue** in foliage or fruit.
- **Not corrosive**—Doesn't corrode equipment or burn foliage when used as recommended.

DU PONT

NUGREEN

RESIDUE REGULATIONS MAY NOT AFFECT 1950 CROPS

By LARSTON D. FARRAR
Washington, D. C.

THE "tolerance residue" hearings, so vital to the fruit and the pesticides industries, are developing the greatest array of evidence on the complexity of the perennial war on insects ever to be put into a single official record in this nation.

Grower representatives who are testifying are showing the necessity for using a variety of pesticides to combat varying destructive elements. They are backing up with factual evidence the testimony of entomologists that varying factors such as weather, fruit species, intensity of infestation, and others bring varying needs for sprays and their use.

The hearings, which began late in January, have heard testimony from scores of entomologists in the U. S. Department of Agriculture and from representatives of fruit growers in Washington, Oregon, California, Pennsylvania, Virginia, Connecticut, and New York. Grower representatives and industry spokesmen from other states will be heard, with representatives of the pesticides manufacturers testifying during the latter part of the hearings. Observers are convinced the hearings will continue for another four or five months.

Unless something unforeseen and startling develops, spray residue tolerances likely will not be issued in time to affect the movement of this year's deciduous fruit crop.

OFAR—To Be or Not to Be?

Fruit growers had a stake, along with all farmers, in the outcome of the Congressional fight over what to do about the Office of Foreign Agricultural Relations of the USDA.

When Representative Harold D. Cooley (D.-N.C.), chairman of the House Committee on Agriculture, returned from a study of European conditions recently, he was determined to do something about the present status of American agricultural relations with foreign governments.

Before World War II, the OFAR had its personal representatives in other countries. They were employees of the USDA and could be promoted inside that department. During and after World War II, the OFAR shrank greatly. Its representatives abroad were either called home or "merged" into the Department of State. OFAR, in its Washington office, was reduced to a skeleton crew.

Observing these facts, Congress-

man Cooley now is determined either to abolish the agency or to see it restored to its former glory.

Truman Nold, executive director here of the National Apple Institute, and other fruit and farm leaders have been working closely with OFAR officials to help convince congressmen that every farmer has a stake in expediting the flow of agricultural exports to other nations.

Brannan Strategy

Congress is somewhat perturbed by the widespread public reaction against the potato surplus scandals, which have featured Uncle Sam in a most ridiculous role—buying potatoes at \$1 a bushel and selling them for one cent a bushel, or giving them away.

The Federal government has lost approximately one-half billion dollars on potato support operations in three years. The USDA now has more than three and three-fourths billion dollars tied up in surplus agricultural commodities.

The \$64 question before the Congress is: What conclusion must be drawn from the present facts? In short, must the Federal government go deeper and deeper into the agricultural field (via the Brannan Plan), or should the Federal government start making moves now to lower support prices gradually and, in time, restore the USDA purely as a service agency.

Most political observers here are convinced Secretary of Agriculture Charles F. Brannan deliberately has played up the potato debacle for one purpose: To pressure the people into clamoring to Congress to enact his plan.

Theoretically, that plan would allow prices to seek their true level at the grocery store, while guaranteeing to the farmer an artificial price. The catch lies in the fact that the taxpayer will pay the difference. Also, farmers would be subjected to increasing regimentation and dictation.

Secretary Brannan has refused to estimate the cost of his plan, but most everybody who has studied the British plan, which is similar, is convinced the Brannan Plan would cost no less than \$8 billion annually.

Fruit growers generally seem to favor working back toward a freer market, with a gradual elimination of government participation in the farm business.

It safely mulches close to nursery plantings

where your big machines do damage



Tillage width 16".
Full depth control.

CULTILLER is designed to supplement your large equipment. Orchardists find it invaluable in mulching operations where CULTILLER can get in close to nursery plantings without harming them.



CULTILLER with
SICKLE BAR
Cuts 36" swath. Con-
structed to operate
quietly and without
vibration.

CULTILLER with
POWER SPRAYER
25-gal. capacity. De-
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pressure. For use in
hard-to-get-at spots.

CULTILLER'S 3 h.p. engine gives you plenty of power, yet it handles easily with fingertip control. Its low price and minimum upkeep make it pay for itself many times over in economical operation.

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OF LEAD**

**CORONA MICRONIZED
50% WETTABLE DDT.**

COROTHION
(15% Wettable Parathion)

*Your Insurance
for Better
Crops!*



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BRUSH RAKE CUTS LABOR COSTS

By DAVID G. WHITE

The Pennsylvania State College

DO YOU PAY labor to pick up pruning brush from beneath your trees? If so, then it is likely that your expenses could be reduced considerably by using a spring-tooth brush rake of the type invented by Sam McAvoy of Hillcrest Orchards, Chester, W. Va. One of Pennsylvania's enterprising fruit growers, F. G. Reiter, manager of the Treesdale Orchards near Mars, realized the practical value of the invention and had one constructed by a local mechanic, adding a few improvements.

With the spring-tooth brush rake, the brush from moderate pruning of mature apple trees is raked from beneath the trees into stacks between rows at the rate of one tree per minute. The brush from heavy pruning may require two trips around each tree and about two minutes per tree. Limbs too large to rake are thrown to the center of two rows where they are removed with a buck rake before using the spring-tooth beneath the trees. The stacks of brush dumped from the spring-tooth rake are cleared with a buck rake.

With small trees or trees lightly pruned, the rake is driven around two or more trees before dumping. The skilled operator can rake the brush from beneath 10 to 20 acres of mature apple trees per day.

Although a buck rake is sometimes used twice in the same season, the Treesdale Orchards have speeded up total removal of brush three or four times in comparison with manual removal of brush from beneath the trees. The moderate cost of the spring-tooth rake is equalled several times over by the saving in cost of hand labor. Being built on the principle of the hay rake, the spring-tooth rake may not prove suit-

able where trees are mulched. Also, for peach and cherry orchards, a smaller rake might be constructed.

The spring-tooth rake for mature apple trees is made from 12-foot channel iron $2\frac{1}{2}$ inches square with 32 heavy-duty standard rake teeth mounted on the channel. The Treesdale Orchards have attached one end of the channel to the right end of the axle of a "Farmall M" tractor by means of an over-sized universal joint.

The outer end of the channel is supported by a swivel wheel of the type used on a side-delivery rake. Mr. Reiter suggests a rubber-tired wheel for use on frozen or rough ground.

The outer end of the channel is braced to the front of the tractor by a hinged $2\frac{1}{2}$ -inch pipe. All these parts are attached with heavy pins which can be removed to allow the rake to be cradled parallel to the tractor for transport along roads.

The channel iron is connected to a hydraulic lift of the type used on a mower or cultivator. This hydraulic lift is rigged in two ways so that it will not only lift the rake teeth for dumping the brush but also will hold the rake teeth down on the ground to pick up brush which otherwise might escape. The hydraulic system is operated by the driver with a 4-way Vickers valve. Stationary horizontal bars similar to those on most hay rakes cause clean dumping when the teeth are raised.

A heavy sheet metal shield mounted just in front of the rake teeth guides high brush to the teeth and also increases the load capacity of the rake.

Mr. Reiter is having a local mechanic build a second spring-tooth rake for a cost of \$250, exclusive of the Vickers valve.



The spring-tooth rake starting to encircle an apple tree moderately pruned.

AMERICAN FRUIT GROWER

25

Cut dormant spraying costs!

SUNOCO

Self-Emulsifying SPRAY OIL

This economical dormant spray will effectively protect your apple and other fruit trees... *at a price you'll find hard to beat.* Leading growers have relied on it for over 25 years.

It controls European red mite, aphids, scale, and other pests during the dormant spraying season. Immediate shipment in 55-gallon drums, 5-gallon and 1-gallon cans. For prices and other information get in touch with Sun Oil Company office in nearest city shown below.

CONNECTICUT Bridgeport Hartford	MICHIGAN Detroit Flint Grand Rapids Lansing	OHIO—Cont. Dayton Toledo Youngstown
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FLORIDA Jacksonville Miami Tampa	NEW YORK Albany Binghamton Buffalo New York City Newburgh Rochester Syracuse	RHODE ISLAND Providence
ILLINOIS Chicago	INDIANA Fort Wayne	TEXAS Dallas
MAINE Portland	MASSACHUSETTS Boston Lawrence Rivers Worcester	WEST VIRGINIA Huntington Wheeling
MARYLAND Baltimore	OHIO Akron Cincinnati Cleveland Columbus	

"JOHNNY APPLESEED" CHESTNUTS

By JESSE D. DILLER, USDA

IF YOU were given five viable chestnut seeds to plant, how well would you fare with them? Could you get most of them to grow, only one or two, or none at all? During the past five years the Division of Forest Pathology in the USDA's Bureau of Plant Industry, Soils, and Agricultural Engineering has tried to find the answer to that question while attempting to establish a very promising strain of blight-resistant Chinese chestnut on farmsteads in the eastern United States.

Although the division is actively engaged in producing hybrid, blight-resistant chestnuts having the best qualities of the American and Chinese chestnut, which is a long-time job, each spring for the past five years they have set aside several hundred Chinese chestnut seeds of a strain that makes rapid height-growth, and in about 10 years produces good-flavored nuts, for distribution to farmers interested in growing trees. This strain was introduced by the USDA as seed from Nanking, China, in 1924.

Selecting Co-operators

The method of distribution was to stop along the highway, at 35- to 50-mile intervals, at farmsteads where there was quite a show of trees, shrubs, and flowers planted about the farm buildings—a fairly reliable index of a worthy co-operator. The interview, which lasted just about two and one-half minutes, went thus: "Would you plant five Chinese chestnut seeds, today, if we gave them to you 'free-for-nothin'?" (It's a rare occasion, indeed, if the prospective co-operator refuses.) The usual reply is: "Sure! Where should they be planted, and how?" Our stock advice is that the seed should be planted shallow, in fertile garden soil, somewhere near the house, where they can be watched and where rodents would be discouraged from thieving because of the presence of a dog or cat.

After giving the farmer some literature on Asiatic chestnuts, we left so as to stay within the two and one-half minute time budget; but occasionally even before we have time to finish our visit, the prospective co-operator would break in with "where is the hook?" He seems greatly relieved when we tell him that all we expect is a prompt reply from him the following August, when he will receive a form letter from us with a self-addressed postcard enclosed, and that



A young farmer (former G I) in north-western Ohio and four sturdy Chinese chestnut seedlings he grew from five nuts furnished him in the spring of 1948.

on the postcard he is to state how many seedlings he obtained and how many inches tall they are. Not infrequently they ask, "What shall we do with the seedlings a year from now?" And again we give them our stock answer: "If, at the end of the first season the seedlings measure 1½ to 2 feet tall, transplant them just as you would a peach or apple seedling; but if they are smaller, hold them until the end of the second year before transplanting." We also stress that barnyard manure, fertilizer, and lime should be withheld. We also warn them against planting one chestnut seedling by itself because chestnuts require cross pollination to bear well.

Success

How successful are these co-operators who are participating in the Johnny Appleseed chestnut seed distribution? At least two and one-half times more successful than we have been in trying "direct seeding" in wooded areas. Even with the "tin can" method of planting, designed to protect the seed from rodents, we succeed in getting only 15 per cent survival; the farmers are getting better than 38 per cent.

Who knows? Maybe this Johnny Appleseed method of chestnut seed distribution will prove the most feasible way of getting our most promising blight-resistant chestnut back into the woodlands, and, at the same time, insure a future seed supply of a strain of Chinese chestnut which, in 20 years of testing by the USDA, is superior to many others tested.

Seed and trees of Chinese chestnut are not available for general distribution from the U.S. Division of Forest Pathology. Some State game and forestry departments have been distributing chestnuts to co-operators.

LITTLE DROPS OF INSECTICIDE

TO INDICATE some of the technical problems of concentrate spraying of insecticides, entomologists of the U. S. Department of Agriculture offer some basic facts about the size and behavior of drops of liquids. These give some idea of why it is necessary to have equipment designed for exact performance.

Scientists use the micron as a unit for measuring the diameter of drops of liquid. A micron is one millionth of a meter. An inch is roughly 25,000 microns. Some examples of drop sizes measured in microns are: Sea fog, 5 microns in diameter; cloud, 33 microns; mist, 100 microns; drizzle, 200 microns; and drops of light rain, 500 microns in diameter, or one-fiftieth of an inch.

These are diameter measures. Each drop has volume. A light rain drop of 500 micron diameter has not five times but 125 times the volume of a drop of mist. A misty drop, in turn, has 8,000 times the volume of a particle of sea fog.

Particle Size Important

The size of the particles that come out of the nozzle of the spraying equipment has great effect on the spread of insecticide on the sprayed surface. Delivered in drops 500 microns in diameter, a gallon of spray to the acre will provide 9 drops to the square inch. A misty spray of 100-micron drops will deposit 1,164 drops to the square inch. If the gallon of spray went out in particles only 5 micron in diameter it would provide more than 9 million particles to each square inch of an acre of ground.

In still air, the scientists find, a 5-micron drop of water will fall 10 feet in 66 minutes; a 100-micron drop will settle at the rate of 10 feet in about 10 seconds, and the 500-micron drop in a little more than a second and a half. In a slight breeze of only 3 miles an hour, a 5-micron drop will drift more than 3 miles in dropping 10 feet; a drop of 33 microns diameter would drift 409 feet; and a 500-micron drop would settle 10 feet with a drift of only about 7 feet. These figures indicate the importance of controlling droplet size and considering wind drift in applying insecticides.

The new insecticides with their high power for killing insects when applied in an effective way make precise regulation of spraying equipment extremely important.

MARCH, 1950



Fellows: Your dreams have come true. RA-PID-GRO sprayed on the foliage enters the sap stream immediately. Results become evident within minutes! Bigger crops . . . earlier ripening . . . healthier plants. Does it all for less money per acre. Use it with your insecticides. (It's the most economical fertilizer available.)

Expert growers call it
the miracle Plant Food.
You will, too.

RA-PID-GRO
is your best insurance
against failure.

Formula 23-21-17

plus 12 other Chemicals, Vitamins and Hormones
to produce flavor, color and abundant crops.

When to Feed RA-PID-GRO

1. With dormant Spray.
2. When fruit starts to develop.
3. When fruit is half developed.
4. Three weeks before harvest.

Place your order NOW with your dealer, as production
will be limited.

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How the FORD TRACTOR *Speeds* ORCHARD WORK!

● Orchardists like the Ford Tractor for fast, economical tillage operations. It is low, compact, short turning; implements are closely mounted . . . it's easy to get between and under trees! Lifting and lowering implements by Ford Tractor Hydraulic Touch Control saves work and time. Dearborn and Towner orchard implements for the Ford Tractor are designed right, built right. For more production and lower costs, investigate the Ford Tractor.

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Complete Line of Towner and Dearborn Implements



The Towner Lift Type Offset Disc, illustrated above, is one of many rugged orchard implements for the Ford Tractor. Entire harrow offsets 18 inches to right or left; rear section also offsets. Lifts, lowers by Ford Tractor Hydraulic Touch Control. Also see the Towner Offset Spring Tooth Harrow, Dearborn Field Cultivator and Dearborn Lift Type Tandem Disc.



Ask your Ford Tractor dealer for a Demonstration—Your nearby Ford Tractor dealer will gladly demonstrate the Ford Tractor with Dearborn and Towner Implements for orchard use. Drop in or phone him soon.

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Ford Farming

MEANS LESS WORK
MORE INCOME PER ACRE

AN EFFECTIVE NEW MITE KILLER

ORCHARD MITES have caused serious damage in many orchards since DDT was placed in fruit spray schedules. Although not true insects, mites such as the European red mite, two-spotted mite, and Pacific red spider mite apparently are held in check by insects. This has led to the theory that DDT has assisted in the spread of mites by killing the insect predators.

Certain species of mites are controlled by dormant sprays to kill the overwintering eggs and by summer sprays to kill the immature forms. Recently, the DuPont Company announced a new spray in the phosphate group for summer mite control. The insecticide, EPN 300, after extensive tests in 21 states, is reported to be an effective control for European red mite, two-spotted mite, Pacific mite, Willamette mite, and clover mites. EPN 300 is known by the technical name of ethyl p-nitrophenyl thionobenzenephosphonate.

Treatments with EPN 300 are recommended as soon as the first sign of infestation appears or when mite population per leaf reaches an average of one or two mites. Investigation last year showed that EPN 300 gave a quick initial kill; and residual protection, in some cases, was obtained for as long as four weeks.

Toxicity

Although EPN 300 is a highly toxic compound which must be handled with the same safety precautions as other organic phosphates such as TEPP and parathion, it is reported to be only from one-fourth to one-eighth as toxic to warm-blooded animals. For general purposes EPN 300 is recommended at the rate of one-half pound per 100 gallons of spray. Its compatibility is similar to other chemicals in the phosphate group.

In orchards where European red mites are a problem, a thorough dormant spray is recommended to kill the eggs as well as two or more cover sprays in the summer if necessary. Very thorough coverage of the undersurfaces of leaves is necessary for best control.

DuPont's EPN 300 adds another chemical to the grower's arsenal of weapons for mite control. With these materials, plus thorough spraying and proper timing, there is no reason why mites should continue to be the serious menace they have been in the past.

AMERICAN FRUIT GROWER

WILDER MEDAL AWARDS

THE AMERICAN Pomological Society during its annual convention February 8-10, held in conjunction with the Ohio State Horticultural Society, in Columbus, awarded Wilder medals to the four eminent and widely known horticulturists shown below. Presentation of the awards was made by Dr. H. B. Tukey, head of the department of horticulture of Michigan State College, who is chairman of the awards committee. A report of the joint APS-Ohio meeting appears in the State News department.

H. HAROLD HUME

Southern horticulturist, professor emeritus and former dean of the College of Agriculture, University of Florida; author, past president of the Florida State Horticultural Society, author of State Plant Act which created the Florida State Plant Board, teacher, investigator, administrator, and distinguished representative of horticulture in the South.



H. H. Hume

For distinguished service to horticulture.

JACOB KINGSLEY SHAW



New England horticulturist, past president of the American Society for Horticultural Science, teacher, author, investigator, leader in orchard management studies, in rootstock studies, and in the establishment of a service which has made it possible for fruit trees to be certified

true-to-name in the nursery, thus eliminating misnamed trees from orchard plantings.

For the identification of fruit plants by vegetative characters.

ARCHIBALD DIXON SHAMEL

California horticulturist, leader in the citrus industry, custodian of the original trees of the Washington Navel orange, who early recognized the importance of mutations in citrus and who through his energetic leadership and co-operation with nurserymen and organized grower groups influenced greatly the development of the citrus industry in California.

For major contributions to understanding of mutations in citrus.



A. D. Shamel

HENRY PERKINS STUCKEY



H. P. Stuckey

Long-time horticulturist of Georgia and more recently director of the Georgia Experiment Station; investigator, author, teacher, and administrator; leader in the development in Georgia of the peach industry, of the pecan industry, of muscadine grape culture, and of the processing

of horticultural products.

For breeding improved varieties of muscadine grapes.

MARCH, 1950

MAG-70

THE BEST AMMUNITION FOR YOUR SPRAY GUN

Year after year, "Mag-70" has proved to be the best ammunition against apple scab, brown rot on peaches and blossom and stem blight on cherries. And it is still the cheapest protection a grower can buy among the milder (non-caustic) fungicides.

With a particle size of not more than 2 microns surface average diameter, "Mag-70" disperses evenly, sets up faster even when only partially dry and protects through the heaviest of rains. It's your best ammunition against apple scab during adverse weather conditions.

For further information — ask any grower who has used "Mag-70".

MAGNETIC "95"
A micro-fine, dry-wettable sulphur for use on apple, peach and cherry. It excels either as a spray or as a dust.

MAGNETIC "90"
A micro-fine dusting sulphur for use during rains or as an in-between dust in a spray program.

PARATHION
Wettable and Dust Concentrates
BHC
15% Gamma BHC Wettable Concentrate

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For use in place of BHC where odor is objectionable.

DDT
50% Wettable and Dust Concentrates

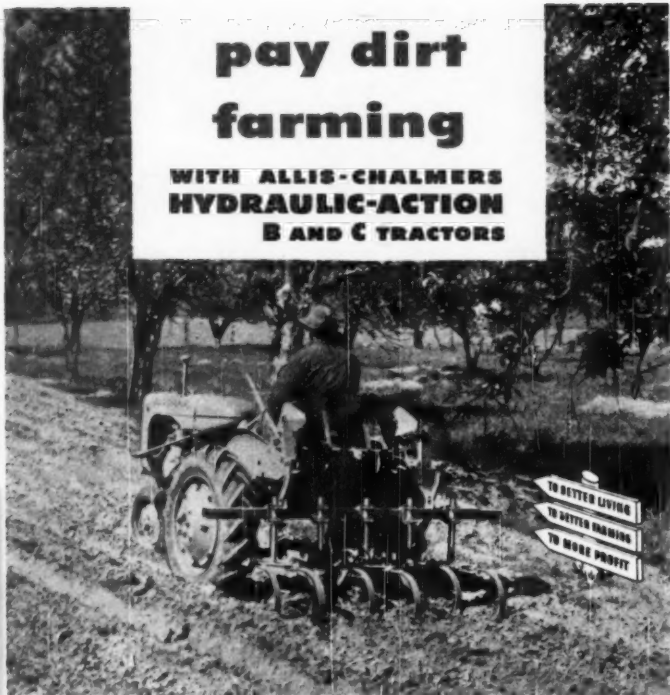
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B AND C TRACTORS**



The wisest idea of 1950 may be for you to make your place a two-tractor fruit farm.

Here is a choice of two tractors that will fit your budget. Either one provides low-cost power to supplement a heavier tractor. Both have the last word in hydraulic finger-tip control . . . with Quick-Hitch front-mounted implements priced lower than horse tools. Both are available with adjustable front axle.

A most economical, all-purpose orchard tractor, the Allis-Chalmers Model C gives you ample power to do nearly all orchard care tasks. You are assured, for example, that the rear-mounted, hydraulic control field cultivator (illustrated) is working at uniform depth to control weeds or prepare orchard mulch.

The same aggressive, versatile power is yours at even lower cost in the Model B, shown at the right with Full Vision V-Belt Mower. Mows close to trees, trims neatly along fences — you never need to nick the bark or hook the wire. A wide line of full-vision C or B implements is available, all with hydraulic control.

Your family farm can hit pay dirt, with two tractors doing two orchard and chore jobs simultaneously. It's an idea to talk over with your Allis-Chalmers dealer.



Quiet V-Belt mower has new variable speed drive with high strength V-Belt which absorbs shock, vibration and noise. Front mounted in full view. Takes the trickiness out of orchard mowing when used on either the B or C tractors.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

PROLONGED DORMANCY

(Continued from page 17)

May 4 they had only clusters of foliage from two-year-old buds in the centers of the trees and their terminal growths were just starting. Many twigs had no leaves. By this time the fruit that had managed to set had long since shed the shuck. Lacking foliage to hold it on the trees, most of the fruit fell off later.

Varieties such as Mayflower, which need 1,300 hours of chilling, suffered most severely from prolonged dormancy. Nearly all of the flower buds of Mayflower died without opening, and very few leaf buds started growth until May.

In South Georgia, where winter weather was warmer, no important varieties were able to set fruit. Bud opening was more delayed than at Fort Valley, but the trees did not die.

Prolonged dormancy trouble with peaches has been experienced in all the more southern parts of the United States, in Italy, and in parts of South America. In South Africa it is a serious problem. In China certain races of peaches have developed that are resistant to prolonged dormancy. In Florida peaches are generally of a special type that needs only a few hundred hours of chilling. They lack size and shipping quality, and blossom too early to be successful farther north.

An Old Problem

Prolonged dormancy trouble is not new. Sixty years ago S. H. Rumph, originator of the Elberta peach, well described the trouble, although not knowing then that the lack of cold weather was the cause. Mr. Rumph reports conditions in the Fort Valley area in the 1890 proceedings of the Georgia Horticultural Society:

"The fruit growers in this section will long remember 1890 as the most peculiar and disastrous season ever witnessed. The extremely dry winter or some other unknown cause prevented peaches from blooming in February and March at their usual time. Our first cold wave during the winter came January 16, and then the thermometer registered only 30° above zero . . . Belle, Elberta . . . commenced blooming about April 5 . . . but the blooms were almost void of petals and the trees did not leaf until late in April and May. It was a strange sight to see orchards of Alexanders without a leaf, as late as May 20th, the time that this variety usually ripens."

It was not until about 1924 that it was generally realized that the trouble was due to the rest period of the peach buds and the lack of chilling

AMERICAN FRUIT GROWER

weather. Similar trouble occurred in 1932, and to a lesser extent in 1937.

Now, peach growers in the south-eastern States follow the accumulation of hours of chilling each winter with interest, and sometimes with anxiety. If November and December are cold, the rest period is broken early and peach trees blossom early. If November and December accumulations of chilling are below average, blossoming is usually delayed, and the threat of prolonged dormancy becomes real.

During the present winter, the accumulation of hours of chilling at Fort Valley was near average on January 1. The first three weeks of January brought temperatures well above average and a deficiency of 180 hours in chilling. The normal early winter chilling is a good insurance against serious prolonged dormancy trouble this season.

Solution to Problem

Numerous methods have been used to hasten the breaking of the rest period of buds. Applications of heat, freezing, alcohol, hydrochloric acid, nitrate of soda, linseed oil, lubricating oil, and various organic compounds; fumigation with ether, chloroform, ethylene chlorhydrin, and ethylene dichloride; and injections of yeast and pure chemicals to stimulate bud development. No method has proved safe, effective, and inexpensive enough for general commercial practice.

A low concentration of dinitro-o-cyclohexylphenol in a dormant spray of lubricating oil emulsion applied to peach trees a few weeks before they normally blossom greatly stimulates blossoming and leafing out. The timing of applications is very important because the spray is effective only after the buds have partially emerged from the rest. If applied a few days too early or too late, much of the effectiveness of the spray is lost. It was used in commercial trials in Georgia last year. Blossoming and foliage were hastened in nearly all cases; but the set of fruit was profitably increased in too few cases for the treatment to be considered successful.

Until a safe, cheap, and effective chemical is found that will break the rest period, the solution to the prolonged dormancy problem lies in the breeding of improved peaches having chilling requirements adapted to southern regions. Both the search for effective chemicals and the breeding of low-chilling peaches are being promoted by State and Federal experiment stations. A number of peach varieties having medium to low chilling needs have already been originated.

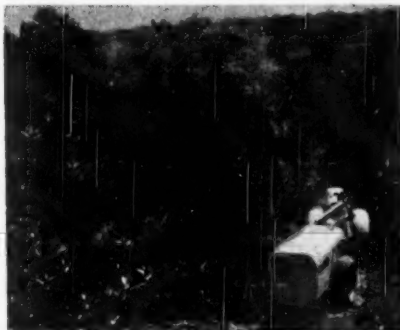
MARCH, 1950

PERFECTED

Concentrate Spray Application



Air controls are adjustable for wind velocity and direction, and size and shape of tree, making it possible to spray successfully on windy days and even in the rain.



Born in a great university—sponsored by the most eminent engineers and entomologists, perfected and put into production by the great manufacturing resources of the Hardie organization, this new Hardie Orchard Mist Concentrate Sprayer is truly the sprayer of today.

Fully field-tested in all fruits—large and small trees and in citrus groves—the Hardie Orchard Mist, delivers a more complete and positive pest control than ever before was obtained. This is achieved with a cost and time saving in spray application that enables the grower to put fruit into the market at an adequate profit under practically all conditions.

Strictly a one-man sprayer this great Hardie is operated by controls easily accessible from the tractor seat. Write for the complete data on this great sprayer that has excited the wonder and admiration of fruit men everywhere.



Write for the new 1950 Hardie Catalog showing a wide variety of up-to-date sprayers delivering from 4 to 80 gallons per minute.

THE HARDIE MFG. COMPANY, Hudson, Mich.

Los Angeles 58, Calif. Portland 9, Oregon
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Canadian Distributor:
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FOR ZINC DEFICIENCIES

Nu-Z contains 55% Metallic Zinc. It is composed of exceedingly fine particles which readily suspend in water for spray purposes. Requires no lime for direct plant application. For zinc deficiencies use Nu-Z.

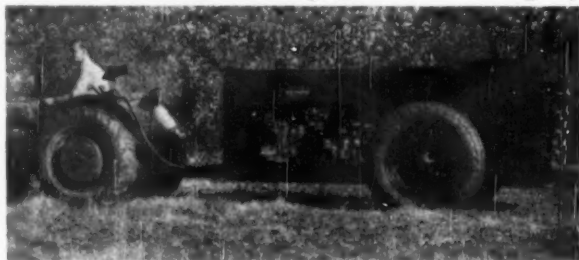
- ES-MIN-EL contains the essential mineral elements of Copper, Manganese, Boron, Zinc, Iron and Magnesium. If you have not mineralized your soil, you can now get ES-MIN-EL in spray or dust form.



TENNESSEE **TC** CORPORATION

It's Real Enjoyment...

To Own a HALE Centrifugal Orchard Sprayer



Above—Arrow points to convenient controls which operate the backs of 5 spray guns on each side, together or separately.

Because it represents a great improvement in the Spray Equipment Field, careful buyers are enthusiastic about the HALE Centrifugal Orchard Sprayer pictured in action at right.

This Centrifugal Sprayer has been thoroughly tested and approved by leading growers. The action picture gives you some idea of the excellent coverage you can obtain from the unit. The CENTRIFUGAL pump will provide any desired capacity or pressure up to 100 U.S.G.P.M. at 600 lbs., with ample reserve.

Users who keep accurate comparative cost records find that the Hale Sprayer not only requires less time to operate but also greatly reduces the cost of spraying.

Send today for Bulletin #202 on the Hale Centrifugal Orchard Sprayer. Please state acres in orchard or grove. (Dealer inquiries invited).



HALE FIRE PUMP
COMPANY, Conshohocken, Pa.

NO LADDERS

(Continued from page 18)

for October, to give a long harvest season.

"Now, as to this machine you have dubbed the 'Iron Monkey' which we have developed over the last three years. We began thinking about such a machine eight years ago when war started. We saw clearly that we had to get rid of the ladders if we wanted to stay in the peach growing business in postwar years. With my brother a mechanically experienced partner, we had a big advantage in designing a machine aimed at our orchard problems. In June, 1947, he had the Iron Monkey ready for trials at harvesting our peaches. He had started building it in April, 1946, only 14 months before we gave it the first trials.

"After we saw it was a success harvesting peaches, we started to make drawings for use by some manufacturer if and when we found someone ready to put it into production. However, in order to introduce it into other commercial orchards and groves, we had two improved machines built. These we plan to use for demonstrations with our own trained crews in selected areas where we may be invited to demonstrate their place in commercial orchards anywhere on the coast.

"Once a few of the machines are in the hands of mechanically-minded orchardists who know they must cut their labor costs to stay in business while keeping their orchards up, the machine will quickly find its place, I am sure. One of these new machines will be used in our Shafter orchards and the other in several peach areas.

Accomplishments

"Here are some of our accomplishments to date:

"(1) Night work when excessive hot weather or heavy ripening demands faster harvest. We find the lights on the machine make it easy to see color and pick peaches in the comfort of the cool nights when temperatures from June to September make it arduous work most of the day hours. Night picking also requires less cooling of fruit.

"(2) Anchoring a better class of labor and keeping it happy on the ranch, with no itinerant labor coming and going.

"(3) Higher quality fruit with less bruises because it is picked at its best and handled carefully by labor paid by the hour instead of by the box. Hence,

UP-TO-DATE FRUIT GROWING INFORMATION of your fingertips is assured when you bind your 12 copies of the 1949 issues of AMERICAN FRUIT GROWER in the handy binder available at \$1.00 each from AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland 13, Ohio.

higher prices for more No. 1 fruit at market.

"4) Long use of machine at three orchard jobs: pruning, thinning, and harvest from May to October. It permits us to use the machine about 120 days a year, keeping our skilled orchard labor on the ranch the year round with only a few local men coming in to fill out the crews.

"5) Costs are cut up to 50 per cent on our peach orchard operations. This insures our keeping the orchards up to high standard of production through proper fertilization, pest control, replacement of old trees, and introduction of new varieties to better balance our use of labor and aim at markets."



NO SCAB HERE

"IT'S A great feeling to take on breakfast at 8:00 o'clock, knowing you've just slapped down scab in 100 acres of orchard," says Carleton G. Howe of Bennington County, Vermont.

That's one reason why he's fond of airplane dusting the new fungicide Phygon. Another is the bumper crop of top-notch fruit he harvested this fall from the blocks of McIntosh where the airplane dusting operation was carried out under the watchful eyes of State horticulturist C. L. Calahan. In the photo above, Carleton Howe is shown at left with Van T. Smith, orchard manager.

Before taking to air dusting, Howe had already been pioneering with Phygon on an increasing scale for three seasons. It proved less at the mercy of rainy spells than other sprays. An application every eight or 10 days was enough. No chlorosis effects were found. A minor drawback was some irritation to necks and wrists of men working the spray rig.

The plane method inaugurated this year used a four per cent dust. Dawn dew made it stick, and air attack did the 100-acre test area in three hours. —William Gilman.

MARCH, 1950



THIS YEAR YOU CAN

STOP LOSSES

FROM RED-BANDED LEAF ROLLER

Thousands of orchardists report *complete* control—thanks to ROTHANE in their spray programs.

Actually, the orchard records of ROTHANE confirm the results of numerous official tests. In these trials, apples and peaches sprayed with ROTHANE have consistently shown 99+ % control of the red-banded leaf roller—even under the most severe conditions of infestations.

If you are in a leaf roller area, you will want the proved performance of economical ROTHANE sprays.

FREE... This Helpful Guide

to insect control shows actual color photographs of insect pests along with suggestions on timing of spray and dust applications. Write to Rohm & Haas Company, Dept. A, Philadelphia 5, Pa. for your copy.



You're **RIGHT**

with **ROTHANE**

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FOR INDUSTRY

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NO "BUGS" WITH

John **BEAN**

AUTOMATIC SPRAYING



There are no bugs in the trees and no "bugs" in your spraying program when you use John Bean automatic equipment. Over 10 years of successful orchard use has made John Bean the standard of performance in automatic spraying.

**Speed Sprayer
Tops with
Concentrates, too!**

Speed Sprayer is still the standard of performance for the application of conventional sprays or concentrates. Either way you still have all Speed Sprayer advantages, including powerful axial-flow Air Drive, full control to spray both sides, either side, or extra high. Cut costs and give your crop full protection with an efficient Speed Sprayer.



**More John Bean
Automatic
Spraying for
every grower**

John Bean Low-Boy makes it possible for you to have all the benefits of automatic spraying at lowest possible cost. With the Low-Boy spray mast you get the complete coverage, including the under-sides of the leaves, that has proved so effective in controlling all orchard enemies. Fast, thorough, one-man application, saves money, saves material, and gives you the top-value crop.



John fmc Bean

LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA
DIVISION OF FOOD MACHINERY & CHEMICAL CORPORATION

**WHAT'S NEW IN
FROST CONTROL?**

FROSTS and freezes! Each year they take their toll of trees and fruit, robbing growers of millions of dollars of revenue.

The most common method of defense against this costly menace is the use of smudge pots; however, the main objection to their use is the smudge which they produce. Sprinkling also has proved beneficial in various sections. Experiments with other methods are being made and tests will prove their value.

● **Most recent of these** is canned sunshine. This new freeze-preventing technique is based on the use of inexpensive chemicals which possess special requisites for storing solar heat. In absorbing the solar heat, the chemicals are transformed from solids to liquids. Release of the heat, stored in containers placed in strategic places in the orchard or grove, is to be thermostatically controlled. The technique is based on researches of Dr. Maria Telkes, Massachusetts Institute of Technology metallurgist, and the Crosby Research Foundation is sponsoring the first large-scale test to be made in southern California.

● **What appears to be** a simple method of solving the Jack Frost problem in orchards and groves is the use of Frost-Pac, a disposable heating unit. The unit consists of a gelatinized fuel oil packed in a cardboard carton with metal top and bottom about the size of a two-pound coffee can. In use, the top is removed and the unit lighted. The oil burns slowly, the carton itself serving as a wick. Tests of the unit in Florida during last November's frost were said to give 100 per cent protection. Manufacturers of the unit are Frost Protection, Inc., Orlando, Fla.

● **Another inexpensive unit** which proved effective in protecting Michigan cherry orchards against frost late last fall and is to be tested in Florida groves is a device resembling a small kitchen kettle-sized stove. Made of sheet steel, the pot-like stoves burn from one-half to three-fourths of a gallon of fuel oil per hour. It is expected the selling price of this heater will be around a dollar each. Manufacturers are United Stove Co. Ypsilanti, Mich.

● **Low-growing crops** such as strawberries are usually difficult to protect against freezes. In recent experiments, radiant energy supplied to unmulched strawberry plants when temperatures dropped below 32° F.

AMERICAN FRUIT GROWER

resulted in saving early blossoms and fruit with an accompanying increase in both production and income. The energy was furnished by infrared frost control machines, a development of the Michigan Experiment Station. The heating unit burns about 10 gallons of fuel oil per hour. It is manufactured by Evans Industries, 2340 National Bank Bldg., Detroit, Mich.

● A war-born development which may prove of value in orchards is known as FIDO (Fog, Intensive Dispersion Oil). This system requires considerable pipe and fan equipment. Cheap diesel fuel is pumped through a pipeline to a number of burners erected about a foot above the ground. Each burner has special atomizer nozzles through which the oil is pumped at high pressure. The resulting oil vapor is automatically ignited and completely burned, producing a fog-eliminating heat. This hot air is then blown out across the area to be heated. In orchards primary blowers probably would be used to spread the heated air through the orchards and secondary fans to drive the air down among the trees. The system is in operation at the Los Angeles municipal airport for dispersing fog.

● Effective circulation of warm air from orchard heaters surrounding the 20-acre Anna Palmberg grove in California has been achieved with what is claimed to be the first engine-driven, fully automatic frost control tower. A 12-foot propeller mounted on a 50-foot high revolving platform makes a complete circle in four minutes. A thermostat sends the tower into operation when the temperature drops to 30 and turns off when the temperature reaches 34. The tower is equipped with an alarm which is set off when a mechanical breakdown occurs.

● A hormone substance, a compound of vitamins and hormones, is being used in an endeavor to reduce shock in plants resulting from freeze damage. It is claimed such treatment also increases the general strength of the plant when given before a frost. When used after a frost to help recovery of damaged plants, the hormone is said to cause new root systems to start to form earlier as well as new foliage and to enable plants to use more of available fertilizer materials. Tests with fruit are still in the experimental stage.

● Perhaps our fruit breeders will develop worth-while varieties which will withstand extreme temperatures but until such time growers should carefully evaluate and study frost control methods before adapting any one of them on a commercial basis.



RUNS BETTER



LASTS LONGER



COSTS LESS

IN THE LONG RUN

QUAKER STATE MOTOR OIL is made from 100% pure Pennsylvania grade crude oil. It is refined with the most modern oil processing equipment . . . and technical skill unsurpassed in the industry. It is the finest motor oil, we believe, produced anywhere in the world.

40¢ per U. S. Quart, including Federal Lubricating Oil Tax
Member Pennsylvania Grade Crude Oil Association

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA

THE VIRUS PROBLEM

(Continued from page 15)

and no well defined leaf abnormalities. They blossom profusely and set fruits. The berries appear normal until about the ripening season. Ripe fruits are one-fourth to one-third smaller than those produced on disease-free plants, are seedy and dry, and are devoid of the usual gloss.

When a large percentage of the plants are infected in any one field, the harvested crop presents an unattractive appearance and is of poor quality. The leaves during midsummer are somewhat yellowish and the

tips of the leaflets are hooked downward very much as in severe streak. Another diagnostic symptom, but not a very constant one, is an inconspicuous bluish streaking of the new canes and fruiting branches. After the bloom weathers off the canes, the markings are obliterated.

The most suitable period for inspection for mild streak is during the first half of the harvest season. Ordinarily, inspections for virus disease detection are made during early summer and again in the fall. Mild

streak does not show during those periods. Undoubtedly an insect carrier spreads the disease, but the identity of the insect is not known.

Blackberry and Dewberry Viruses

Blackberries and dewberries are relatively free of virus troubles. A few have been reported, but none have approached the importance economically of the raspberry viruses. Blackberry dwarf has been reported as occurring in the Pacific Coast States in the varieties Phenomenal and Logan. Relatively few plantings are infected but considerable loss occurs in some fields. Infected plants become extremely dwarfed, internodes of canes are shortened, and are almost spineless. The leaves are small and distorted. Fruit, when formed, is about normal.

Sterility in blackberries seems to be increasing in eastern United States and, in some cases, it may be a virus type of disease. Affected plants are never dwarfed and leaves appear normal. The plants blossom but berries do not form.

Strawberry Viruses

Virus diseases are prevalent in strawberries in North America, Europe, and the British Isles. Four diseases of this type have been reported from the Pacific Coast, namely, yellows or xanthosis, crinkle, stunt, and witches'-broom. The last two are of slight importance.

Crinkle is a name applied to a virus form at one time prevalent in Oregon, that caused dwarfing of plants and crinkling, mottling, and distortion of leaves. It is suspected now that crinkle is a mild stage of a more severe type of a virus disease.

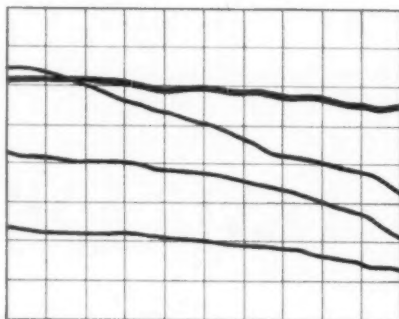
Yellows, however, is widespread and does considerable damage in all three of the Pacific Coast States and has attained rank of first importance. Growers are becoming more and more concerned about its increasing prevalence and the lowering of berry production due to the disease.

The variety Marshall constitutes over 90 per cent of the strawberry acreage in Oregon and Washington. Symptoms of yellows show fairly well in this variety—mild to extreme dwarfing, thin stand of plants, and some yellowing of the new foliage, especially in spring and fall.

The expressed symptoms vary greatly in different districts and fields and even in the same field, from very mild to extreme. These differences of effects upon plants are confusing to both growers and investigators and are attributed to climatic influences, soil fertility, and to different strains, or forms, of the virus present. Symptoms show best in the cool, foggy sections and where soil

THE LOWDOWN ON INSULATION

Efficiency
is as
efficiency
does



Remember the old saying—"Handsome is as handsome does"? Just change that word "handsome" to "efficiency," and you're talking about low-temperature insulation.

The smart insulation buyer realizes that theoretical or laboratory efficiency isn't the whole story, by any means. He wants his insulation to keep on delivering efficiency in his cold room walls.

One of the grand things about Novoid Corkboard insulation is the dependable way it stays efficient year after year in actual service. Our customers keep coming back for more. Satisfaction—not force of habit—is the reason for that.

Of course, Novoid Corkboard is made here in the United States, under strict quality control. And it's installed by some of the most experienced, dependable men in the business. It's about as good a way to keep refrigeration costs down as

you can possibly find. If conflicting insulation claims are bothering you, just write to us. We'll be glad to send you the "lowdown." Novoid Cork, Englewood, N. J.

CHECK LIST OF INSULATION PROPERTIES

	Novoid Cork Insulation	Many Other Insulations
First cost	moderate	low to high
Installation cost	low	moderate to expensive
Eventual cost	low	high
Efficiency	remains high	generally deteriorates
Moisture resistance	excellent	some good, some poor
Vapor seal	simple	complicated or difficult to install
Structural strength	very good	some non-existent, others fair
Weight	very light	varies
Resilience	considerable	from fair to complete rigidity
Settling	none	a serious problem
Supporting structure	none	elaborate
Fire resistance	good	excellent to poor
Vermis resistance	good	excellent to very bad
Odor absorption	none	some are regular sponges

Consider EVERY factor
when you buy insulation

is fertile, where healthy plants attain their maximum size and present a greater contrast to infected plants.

Spread of the disease is accomplished by two methods. First, by runner plants originating from infected mother plants; second, by the white strawberry aphid. This aphid is abundant during the fall and early spring in all of the principal western strawberry growing sections. Winged forms serve as carriers of the disease to nearby fields.

Several methods have been employed to lessen the spread of yellows and to enable growers to obtain clean, or relatively clean, plants. Roguing of young fields, where the



HANDY ANDY

The problem of cultivating strawberry beds on steep ground was overcome by A. S. Howe of Silverton, Ore., with the building of this homemade crawler-type tractor. Two detachable shovel points straddle the row below and in front of the driver and six spring teeth cultivate the center rows behind; both are adjustable for depth and spacing. Handbraking car brake drums, salvaged from an automobile, at the ends of shortened rear axles, provide the steering mechanism.

incidence of infection is not high, has given some relief—provided that the aphid population is low and the fields are separated at least one-half mile from old infected fields.

The use of virus-free plants for setting new fields located in an isolated area where the aphid vector is absent and periodical inspections by a trained personnel, give the best assurance for growing plants with a maximum productive life. Spraying fields with an aphicide during spring and autumn is being recommended. An added insurance is late setting of plants at a period when the population of winged forms of aphids is low; thus, the field will es-

(Continued on page 38)

MARCH, 1950

TO EVERY SPARK PLUG USER!

CAPT. EDDIE RICKENBACKER VOLUNTEERS THIS AMAZING STORY ABOUT CHAMPIONS!

President and General Manager of
Eastern Air Lines Credits **SAME SET**
OF DEPENDABLE CHAMPIONS with
240,000 Miles of Air Travell



Actual photo of one of the Champions cited above and gold-plated by Capt. Rickenbacker as a souvenir.

← "THIS SPARK PLUG is one of the set of thirty-six (36) which operated in the #4 engine #75737 in Eastern Air Lines' new type Lockheed Constellation #115A for 811 consecutive hours of trouble-

free operation. This amount of operating time, which is most unusual, based on an average cruising speed of 300 MPH, is equal to approximately 243,000 miles. During this period the spark plug fired approximately sixty million times. This type of service from a spark plug is remarkable even when compared to the type of operation as recent as a year ago. During its life it was one of the spark plugs (none of which were changed) that helped carry myself and party on our Latin American Tour during August of 1949."

Eddie Rickenbacker

All Champion Spark Plugs, regardless of type or purpose, are products of the same unequalled research engineering and manufacturing facilities. As a result, the same qualities of outstanding performance and dependability, so dramatically demonstrated above, are inherent in every Champion, for every engine!

FOLLOW
THE
EXPERTS
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CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

Listen to the CHAMPION ROLL CALL . . . Harry Wiener's fast sportscast every Friday night, over the ABC network

NOW AVAILABLE

**FOR
COMMERCIAL
GROWERS!**

VIGORO*

—a special
formula created to
bring bigger yields of
better quality fruit crops

■ Naturally you want the highest profits possible from your orchards but to gain this you must have large yields... top quality. That's exactly where this new formula Vigoro for Commercial Growers can help. Because it will improve flavor, increase yields, produce better color, help bring about a more uniform maturity and produce higher quality. See for yourself how Vigoro for Commercial Growers helps produce these results. Buy it today.

*VIGORO is the trademark for Swift & Company's complete, balanced plant food.

**SWIFT &
COMPANY**

Plant Food Division
Chicago 9, Illinois
U. S. Yards



THE VIRUS PROBLEM

(Continued from page 37)

cape extensive infection during the first growing season.

The strawberry virus situation in the rest of the country is somewhat different. The variety Marshall, which serves as a good indicator for the presence of virus diseases, is not grown east of the Rocky Mountains. Therefore, the growers have no standard to judge the extent of virus infection. Nevertheless, virus diseases occur in eastern strawberry regions and to a far greater extent than is ordinarily suspected. Some varieties are probably totally infected.

Three types of viruses are recognized in the East on strawberries. Two are of relatively minor importance. One type, known as "leaf curl," is occasionally seen in Maryland, New Jersey, New York, and New England, and causes the leaflets to twist and form a loose cylinder. Dwarfing is not a conspicuous symptom and runner plants are formed as in normal plants.

Another type, locally called "multiplier plants," has been known in northern Wisconsin for many years. Infected plants are bushy, due to the formation of several adventitious buds from the main crown. Runner production is scanty and the runner plants root near the old plants.

Both of these types are conspicuous and easily rogued. No vector is known. If a vector is not involved, then spread takes place only by setting infected daughter plants.

The most widely distributed strawberry virus in the East is a form of yellows, similar to or identical with the one on the Pacific Coast. Just how long this disease has been present in the East is not known; but it is thought to be of recent introduction, as growers are just now beginning to complain about difficulty of obtaining good stands of plants. However, it may have been present for a long time and only recently have varieties with easily recognized symptoms been widely grown.

Yellows was first observed in the variety Catskill, by the writer about 10 years ago. Now yellows-free Catskill plants are difficult to find. It was recognized next in the Dorsett and now most Dorsett fields are infected. In fact, it is now difficult to find virus-free plants of any variety, especially along the middle Atlantic seaboard. Even some of the newer varieties are infected, which indicates they become infected prior to, or soon after, their introduction.

Symptoms of the yellows virus

Phygon-XL

APPLE SCAB CONTROL

An improved Phygon formulation with controlled particle size for control and eradication of Apple Scab.

During the 1948 and 1949 seasons, Phygon-XL, used at 1/2 lb. per 100 gallons of water gave outstanding scab control, and good yields of U.S. No. 1 fruit in commercial orchards.

Phygon-XL is compatible with Lead Arsenate, DDT, Chlordane and Rotenone wettable powders.

PHYGON-XL ALSO CONTROLS

Blossom Blight of Peaches
Brown Rot of Peaches
Cherry Leaf Spot
Coryneum Blight
Peach Leaf Curl



**UNITED STATES
RUBBER COMPANY**

Naugatuck Chemical Division

NAUGATUCK

CONNECTICUT

disease are not at all conspicuous in most eastern strawberry varieties. There is no mottling, spotting, or streaking of leaves, only slight yellowing of autumn-formed leaves of some varieties. In other varieties the only abnormality that may be recognized is a slight to moderate dwarfing of plants, due to short leaf stems and their horizontal, not upright, growth.

The effect in some varieties is, in addition to dwarfing, a marked reduction in the number of runner plants, which results in a thin stand of plants. Such varieties as Fairfax, Fairpeake, and Pathfinder, when infected, produce very few, if any, daughter plants. Infected Premier, Blakemore, and Gandy, normally heavy plant producers, form a moderate to almost the usual number of plants. Such varieties may be considered as tolerant to the virus and detection is difficult, or impossible, unless they are grafted to some variety, such as Marshall, that shows clear diagnostic symptoms.

There is great need at this time of finding virus-free plants of our best varieties for use in propagating healthy plants to replace the run of plants now propagated.

Yellows is spread by a white aphid similar to the one that serves as the virus carrier on the Pacific Coast. The abundance and distribution of the eastern aphid species is not known. It has been seen in Maryland every year since 1940; at Raleigh, N.C., in the fall of 1947; Teachey, N.C., spring of 1948; Geneva, N.Y., spring of 1947; and was collected in Massachusetts in the fall of 1949. It is quite certain, however, that the virus carrier is not so widespread in the East as is the one on the Pacific Coast. If this aphid has become established in only a few restricted areas in the East, then it will be comparatively easy to maintain virus-free stocks if grown in non-aphid-infested regions.

Blueberry Viruses

One virus disease is known in blueberries and it is referred to under the name "stunt." Infected bushes become considerably dwarfed; new growth is short and bushy; and the leaves are small and yellowish, mainly at the tips and along the margins. Stunted bushes blossom and set fruit but the berries fail to develop to normal size. They have an unpleasant flavor, and do not separate easily from the stems. These berries may hang on the bushes until fall. New canes rarely develop from the base of an infected bush, and when they do their growth ceases at

(Continued on page 40)

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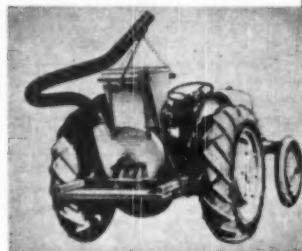
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Orchard Duster

All-Purpose Power Sprayers

The new and improved line of Dobbins Power Sprayers includes Skid-type units for stationary use or vehicle mounting. Tank capacities range from 25 to 200 gallons. PTO and engine-powered Trailer Sprayers, available in 150 and 250-gallon models, are easily hitched to any vehicle. These crop-saving units meet all orchard and vineyard weed and pest-control needs.

Write for descriptive literature on the complete line of hand and power dusters and sprayers built by Dobbins.



Skid-type Power Sprayer



Low-clearance Trailer Sprayer

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THE VIRUS PROBLEM

(Continued from page 39)

about 12 to 18 inches. When an old stunted bush is cut back to the ground, many new canes appear, grow about one foot, and become bushy due to the production of several lateral shoots.

All varieties seem to be susceptible to stunt, but there is a wide difference in tolerance. The variety Rancocas seldom shows symptoms, even when exposed to heavy infection. The Harding variety takes the disease but is only slightly damaged. June, Dixi, and Stanley are also relatively tolerant.

Potentially, stunt is the most destructive disease attacking blueberries. Fortunately, at the present time there are not many fields with infected bushes. In North Carolina, if not rigorously rogued, infected fields of all varieties except Rancocas may be abandoned after five or six years on account of diminished production.

Stunt is comparatively a newcomer in horticultural crops, known only since about 1930 and first proved to be of a virus nature in 1942 by R. B. Wilcox in New Jersey. The disease is totally destructive to individual infected plants.

General Outlook

There is nothing new about the control of small-fruit virus diseases. Everlasting vigilance in preventing their introduction on one's farm and prompt removal of all plants appearing to be dwarfed, having mottled, yellowish, or misshapen leaves, or producing abnormal fruits are matters to which all growers should pay strict attention. Precautions must be taken against bringing in virus diseases with varieties that are symptomless carriers.

In general, the raspberry virus situation is in a far better shape than 25 or 30 years ago due to the growers' interest in maintaining disease-free plants, with assistance from research and extension workers and regulatory officials. Mild streak in blackberries and sterility in blackberries are two bramble troubles that are spreading at this time. Blueberry stunt also is spreading and is slowly taking possession of some fields.

Strawberry virus diseases are on the increase and berry production on the decline. A great deal of work must be done in the way of research and in the development of new stocks of strawberry varieties free of virus for replacement of the old infected stocks now being propagated. Effective methods for maintaining virus-free stocks must be developed.

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AMERICAN FRUIT GROWER

STATE NEWS

(Continued from page 20)

apples in cases where the dealer had built up a demand for such fruit.

If the growers absorbed much of the discussions and will put some of the suggestions into practice, there is little doubt that the next apple crop in Maryland will show considerable improvement and production costs may drop, due to higher production of better quality fruit.—A. F. Vierheller, Sec'y, College Park.

NEW YORK—Marketing and ways to reduce costs were featured at the 95th annual meeting of the New York State Horticultural Society held at Rochester January 18-20. The entire first day's session was devoted to a discussion of ways and means of getting better prices for fruit. A straw ballot was taken to determine what kind of a marketing program, if any, growers want. The ballot asked the opinion of the growers on three main proposals: a continuation of government purchases for the school lunch program, a government program maintaining minimum prices for apples, and an organization of apple growers.

Allan B. Kline, president of the American Farm Bureau Federation, in his address criticized the Brannan farm plan, labeling it as uneconomic and impossible to carry out.

In the following day's forum on concentrate spraying, Kenneth Parker of Cornell University indicated that he felt the machine of the future would be smaller than present-day models, perhaps with a hand-operated fishtail delivering air at higher velocities.

Dr. J. M. Hamilton of the New York Experiment Station at Geneva said that it is hard to get accustomed to concentrate spraying and that it is wise to proceed slowly. His fear was that growers may not take the trouble to calibrate the machine by regulating the speed of the tractor. He said that it is necessary to use a spreader and sticker and to change calibrations with each spray or change in weather conditions.

In summing up the discussion, Dr. A. B. Burrell of Cornell recommended a conserva-



AU REVOIR! Dan Dalrymple (left) Lockport, secretary, and E. Stuart Hubbard, Poughkeepsie, 1950 president, concluded the recent New York Horticultural Society meetings with a friendly handshake.

tive attitude and said, "Let's go slowly and not adopt more than a four times concentration for the coming season." Dr. Burrell stated that concentrate sprays are fairly well established for protectant fungicides, stomach poisons, and contact insecticides. Concentrate spraying may not do so well with eradicant fungicides and with dormant sprays where it is necessary to kill pests beneath the rough flakes of bark, such as red mite eggs and San Jose scale.

Three life memberships were awarded at the annual banquet to Frederies W. Cornwell, Sr., Pultneyville; Harry D. Brown, Waterport; and Grant Hitchings, Nedrow.

(Continued on page 42)

MARCH, 1950

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McCULLOCH 3-25 POWER SAW



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One gallon makes 800 gallons of spray.

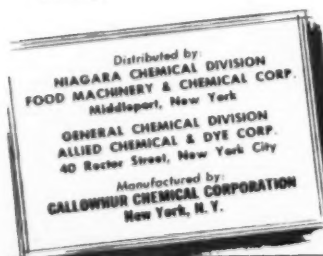
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Instantly water soluble. Leaves no visible deposit. Can be applied with common insecticides and fungicides.

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Effective, too, for brown rot blossom blight of cherries and peaches, and certain other plant diseases.

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STATE NEWS

(Continued from page 41)

WASHINGTON—The unprecedented cold weather that prevailed in January and early February caused extensive damage to fruit buds of soft fruits in the Wenatchee, Yakima, and Vancouver districts. Extent of the damage is not definitely known but predictions are that the subzero temperatures—in some instances minus 25 degrees—practically killed the peach and apricot crops while a limited commercial crop of cherries is expected. Growers fear that trees weakened by last year's cold may have been killed. Last year bumper crops of soft fruits were produced in Washington. Apple and pear trees seemingly have not suffered greatly from the extreme temperatures.

A. Z. Wells, 81, orchardist and owner of Wells & Wade, nationally known orchard supply company of Wenatchee, Wash., died recently of a heart ailment while on vacation in Florida.

The 45th annual meeting of the Washington State Horticultural Association recently held at Wenatchee was without doubt the smoothest operating meeting the association has ever had. The sections of the program dealing with ways of cutting costs were particularly interesting.

That chemical thinning of apples is an effective way of reducing thinning costs was indicated by the statements of Dr. L. P. Batjer, principal physiologist of the U. S. Bureau of Plant Industry. Production can be increased 150 to 200 boxes per acre, stated Dr. Batjer, provided the orchard is suitable for blossom thinning.

There is a definite relationship, he told growers, between the size of the fruit at 35 days after spraying and the size it will be at harvest time. For example, Winesaps that are 0.8 inch in diameter at 35 days will be about size 163's at harvest time. Winesaps 1 1/4 inches will be 88's.

Last season 4,000 to 5,000 acres of orchards were chemical thinned in central Washington, according to Dr. Batjer.

Hatfield Oules of the Beebe Orchard Co. at Chelan, reported that chemical thinning had reduced thinning costs 50 per cent in their orchards.

Frank Worthen, veteran Yakima grower, succeeded Rodgers Hamilton of Okanogan as president of the association; Edwin Smith, senior horticulturist of the U. S. Bureau of Plant Industry in Wenatchee, was elected first vice president, and Cecil Clark, fruit grower of Wapato, second vice president.—John C. Snyder, Sec'y, Pullman.

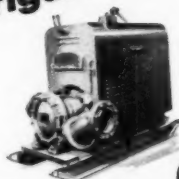
MICHIGAN—Being primarily for dormant use, the manufacturers of the new organic insecticide DN-289 have added an anti-freeze to the product, thus insuring that under normal conditions the insecticide will remain in a liquid state. The addition of the anti-freeze has lowered the crystallization temperature of the insecticide from 30° F. or higher to 20° F. or lower.

DN-289, except in a few specific cases, is strictly a dormant spray and as such is not only effective against aphids but satisfactory control of scale insects, the eye-spotted bud moth, and pear psylla is also obtained.

The three specific cases where DN-289 can be used for other than a dormant spray include: 1) control of pear psylla and sooty blotch fungus on pears, 2) suppression of apple scab by ground coverage, and 3) blossom thinning. Also, it should not be used as a dormant spray on peaches and quinces.

DN-289 is incompatible with Bordeaux mixture, liquid lime sulfur, or other strong-

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ly alkaline materials. It is not recommended for use with oil, but both materials may be used separately if two weeks' time or one-half inch of rain intervenes their application.

Dormant applications may be made at any time when conditions are such that the spray will dry before it freezes. When the temperature rises to 40° F. or recedes to 40° F., it is not necessary to delay application. Injury is not caused by overlapping deposits of DN-289 when spraying with the wind.—Eugene Perrin.

UTAH—The theme for the Utah State Horticultural Society annual convention held in Salt Lake City January 13-14 was "Keeping the Fruit Grower in Business."

Dr. W. D. Thorne of the soils department at the agricultural college, Logan, pointed out that certain areas are deficient in zinc, manganese, and iron. Even though the symptoms are not pronounced in the leaves of the trees, minor element deficiencies will cause loss of yield, and every effort should be made to detect and control these deficiencies. Applications of manganese sulphate to the soil were recommended, along with injections of iron phosphate for control of yellowing, and zinc sulphate sprays for control of little leaf.

COMING MEETINGS

Apr. 4-5—Vermont State Horticultural Society annual meeting, Middlebury.—C. Lyman Calahan, Sec'y, Burlington.

June 14-16—National Apple Institute annual meeting, Boston, Mass.—Truman Nold, Ex. Sec'y, 726 Jackson Place, Washington 6, D. C.

Dr. Warren P. Tufts, head of the division of pomology, University of California, stated that reduced returns to apricot growers was resulting in the pulling of a number of trees in California. The apricot acreage is now at a very low level. It appears that many growers have been pulling trees which have been growing 30 and 40 years.

Dr. L. P. Batjer, USDA, Wenatchee, Wash., explained the method of pruning apples in the Northwest, in which trees were tagged during the harvest period to indicate the type of pruning desirable after the leaves had fallen. He also stated that several thousand acres of apples were now being thinned very successfully by chemical sprays. Individual growers should try these out in an experimental manner before application to large acreages.

In the discussion on marketing, it was brought out that quality and pack are two factors which largely determine the moving of apples through the local markets. The apple promotion campaign in Utah last year in which only high quality apples were offered for sale resulted in an increase of volume over twice that of previous years.

Fred Powell of the Producers Co-operative in Grand Junction, Colo., stated that with their large volume of peaches to move in a period of 12 days it was not possible to handle tree-ripe fruits for shipment to midwest consumers. As many as 300 to 400 cars a day leave this one small area and to date no facilities have been made available for precooling of fruit before loading it into cars.

Dr. Ellis W. Lamborn of the Agricultural College at Logan pointed out that the midwest consumer preferred peaches that were almost tree-ripe and possibly would pay a small premium for these. At least, the higher quality fruit moved in largest volume and was preferred, even though some waste resulted from overripe peaches.

New secretary of the society is Clarence D. Oshon, Route 2, Box 315, Provo.—A. Stark, Logan.

MARCH, 1956

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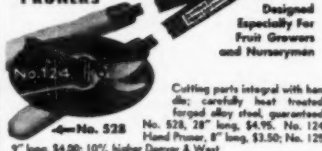
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From where I sit ... by Joe Marsh

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One of my molars was giving me a bad time Tuesday afternoon, so I slipped over to Doc Jones, hoping to catch him free. When I arrived, Gabby Jackson was sitting there reading a magazine. I said hello to Gabby and he nodded.

Doc comes out and says I'm next. "Wait a minute," I says. (My tooth seemed to have stopped aching.) "Doesn't Gabby have an appointment?" Doc smiles and says, "Gabby? Why, he's got the finest teeth in the county. He just comes up here and reads the magazines whenever he's in town!"

As Doc went to work he told me that he's glad to have Gabby come and read magazines... they might not all be fresh off the newsstand, but if Gabby, or anyone, wants to while away time who is he to stand in their way?

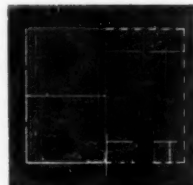
From where I sit, this "live and let live" spirit helps make America what it is. If I prefer a friendly glass of beer with my supper and you prefer milk—who's to say one's right and the other wrong?

Joe Marsh

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Really Worth While



For the grower who wants to build a cold storage, tenant house, or a new home for himself, the Pacific Lumber Co. is offering, without charge, basic construction plans. After looking over one of these plans on an apple cold storage, we can really recommend them to you—they are complete, easy to follow, and designed by experts. Write The Pacific Lumber Co., 100 Bush St., San Francisco 11, Calif.

Air Purifier for Storages

A number of growers and operators of small refrigerated and non-refrigerated apple storages have found the Dorex "Food Saver" highly useful for the removal of ripening and scald gases and general quality preservation in storages up to 3,000-bushel capacity.

Developed for walk-in and reach-in coolers, this device consists of two activated carbon-filled canisters, small blower, and motor. As in the larger fruit storage units, ranging from 5,000 to 20,000-bushel

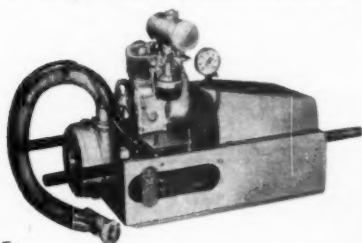


- "FOOD SAVER"
- MIST BLOWER
- SPRAY GLOVES

capacity, each canister is rated at 250 bushels. Hence, one "Food Saver" may be used for each 500-bushel capacity in storages up to 3,000-bushel size. Above this capacity the 5,000-bushel unit is more practical.

Only 18 inches long, the "Food Saver" may be installed on either wall or ceiling. Current consumption is about the same as that of a small light bulb. W. B. Conner Engr. Corp., 114 East 32nd St., New York 16, N. Y., is the manufacturer.

A Big-Little Mist Blower



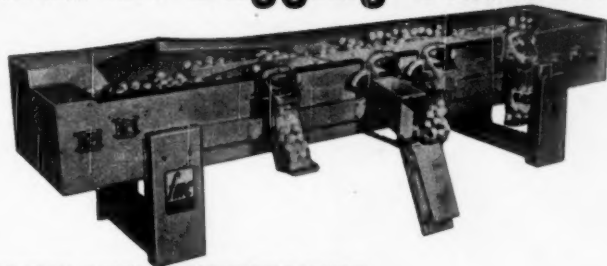
Small in size—beautifully built—light in weight—the new Mutoscope mist blower can do as much as some of the big, heavy machines costing a lot more. Ruggedly designed with all parts of stainless steel, bronze, or aluminum, the machine weighs only 100 pounds. It can be mounted on a truck or tractor. The blower supplies 120 cubic feet of air per minute at 10,000 R.P.M., developing a nozzle velocity of 240 miles per hour. Distributors are being appointed and several splendid territories are available. Write to The International Mutoscope Corp., 4402 11th St., Long Island City 1, N. Y.

Moldex Gloves



Just in time for the spraying season are these new plastic coated Moldex gloves. Especially suited for use with insecticides and fungicides, these gloves, according to the manufacturer, are resistant to arsenicals, DDT, parathion, sulfurs, organo-mercuri, etc. They are available in both wrist length and gauntlets in three sizes for men and women. Write the Champion Glove Corp., 850 Metropolitan Ave., Brooklyn 11, N. Y., for additional information.

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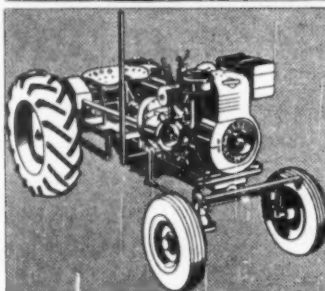
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A FAMILY PROJECT

(Continued from page 16)

orchard, or an additional enterprise which would not conflict to any great extent with the orchard for it was the orchard business they wanted most.

There was a possibility that beef cattle would fit into the Dempsey program. Such a livestock program required extensive pasture and forage crops to do the job right; yet, cattle presented some advantages. The Dempseys, therefore, during the last 10 years have added more land to their holdings and have developed a beef cattle raising and feeding pro-

HANDY ANDY



This pruning, thinning, and picking wagon, designed and built by Jesse Clark of Lockport, N.Y., not only saves much climbing and ladder moving but also promotes faster use of air tools.

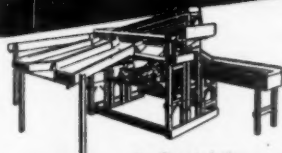
The platform is 7 feet high, 4 feet wide, and 12 feet long and is mounted on a rubber-tired wagon with a deck 30 inches high and 6 feet wide. There are two swinging catwalks, each 8 feet long, which can be swung in almost a complete circle by an upright lever and which can be raised to about a 60-degree angle. The wagon is drawn by a standard orchard tractor which can be controlled from the platform by four ropes. One rope pulls in the hand clutch, another pulls it out, and the other two ropes do the steering.

gram along with their orchard operations. Land is not too expensive in this hill country, as much of it is grown up in brush and of little agricultural value. It can be bought for \$50 an acre or less; however, with care, this land is suitable for grazing and for orchard sites.

All told, the Dempsey holdings now comprise 850 acres. About 185 acres are in apple orchard, with the exception of 10 acres recently planted to peaches. One hundred acres are in bearing. There are 220 acres of forest that will cut about 150 board feet per year. To supply 150 head of beef cattle with feed and forage, there are 135 acres of cropland and

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1/2" x 50 Ft.	12.50
1/2" x 75 Ft.	18.25
1/2" x 100 Ft.	24.00
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Where did Estel Dempsey plant his young orchards? On the very highest ridges of each farm, the best sites he could find. Here they are free from frost and are more apt to yield a crop every year. It hasn't been a bad combination, orcharding and cattle raising—apples from the ridges, beef from the valleys.

What of the future? With a growing orchard and farm enterprise such as this, some plans for the future must be made. Estel has talked this over with Horton and Dale. The boys are interested in developing further the present farms. They are interested in increasing efficiency of all operations, for they feel this is the way to more profitable fruit production. Horton even remained home from the university during the autumn quarter so he could help market the big apple crop. As he told me: "I am pretty weak on the marketing end of this business, and it is surely the end we will have to do something about. So I am going to get all the experience I can right here on the scene."

When the boys are finished with their college training they will have the privilege of buying into their father's business on a one-third basis. Each then will receive a third of the earnings. It will take a little time to do this and to give Mr. and Mrs. Dempsey the opportunity to retire from the great activity they have known for the past quarter century. But the elder Dempseys feel it will give the boys a chance to gradually work into a business of their own, a business they have helped build. It also gives the boys a goal to work toward, an accomplishment worth striving for.

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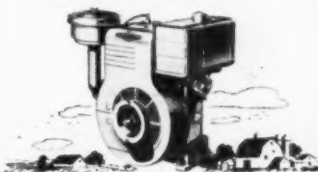
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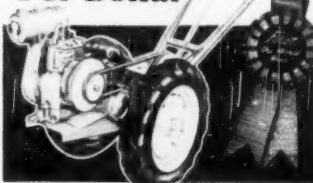
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AN INSIDE LOOK

(Continued from page 13)

enough so that they can fit in between the plates of this kind of clay mineral. Attractive forces hold them in between the plates strongly enough so that they are not leached out of the soil.

Some elements can stick on the outside of clay minerals due to the attractive forces of certain elements for each other, something like a magnet for iron. These elements vary with clay minerals, so some clays hold more elements like magnesium, phosphorus, and potassium than others.

The element hydrogen has a "toxic" effect on the basic elements calcium, magnesium, and potassium and tends to push these elements out of the platy minerals. Plants in growing give off carbonic acid. Carbonic acid contains hydrogen thus providing a source of this element in the soil.

When hydrogen pushes out elements like calcium, magnesium, and potassium, they are made available to the roots of plants; so it is not altogether desirable that these elements be held too tightly by the clay minerals. When they are pushed out faster than the plant can use them, these fertilizer elements are leached out of the soil.

Some Soil Acidity Not Harmful

A very undesirable situation occurs when hydrogen entirely replaces the basic elements on the clay particles. The soil becomes acid and the basic elements are leached out. The usual way to avoid such a situation or to cure it is to add lime. The lime will then replace most of the hydrogen, also making room for other elements like magnesium and potassium. Since hydrogen serves a useful purpose in soils, we do not drive all of it out by making our soils basic. We keep our soils slightly acid so that some hydrogen will be available to perform its useful duties.

Montmorillonite clays may have about 10 times greater exchange capacity than kaolinitic clays and also have the capacity to hold several times as much water. Most of our soils in Connecticut have a predominance of kaolinitic clays and also are low in total amount of clay. That means that our soils are naturally low in fertility.

We increase the productivity of our soils by the use of fertilizers. In the case of the kaolinitic clays, when fertilizers are added they often are tied up so tightly they are unavailable to plant roots. Neither do they leach out of the soil. But some of our soils are high in montmorillonite

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clay. It is these soils which should be in maximum use for crop production. Unfortunately, that is not the case for all of these high-montmorillonite clay soils, even in Connecticut.

Soils Research Helpful

You may wonder what all this may mean. If we could learn more about what goes on in the soil when fertilizers are applied, it might be possible for us to make more efficient use of our fertilizers. For example, it is often said that only 10 to 15 per cent of our phosphatic fertilizers are used by the crop the first year and possibly only 50 per cent of the phosphorus is ever utilized, the remaining amount being tied up in the soil clay complex. Another fertilizing element that becomes fixed rather easily and unavailable to plants is potassium.

If we could find how to "untie" soil phosphate and potassium, we certainly would be increasing the efficiency of our fertilizers as well as conserving our important natural resources. Untold millions of dollars would be saved the farmer in his fertilizer bill.

What we need now is more research to find out what really goes on in the soil when fertilizers of various kinds are applied. Much of the work to date on fertilizers has had to do with applying them on a field basis.

One approach is to study the soil clay complex. One of the first steps along this line, it seems, is to realize that all soils are not alike, studying major kinds of soils to learn something about their make-up.

On the surface, solution to this problem may appear simple. Many kinds of research tools will be required for the solution of the problem, like X-ray, the use of radioactive materials, and atomic knowledge.

In the Connecticut Agricultural Experiment Station at New Haven we have recently installed an X-ray apparatus for studying the finer fractions of the soil. We hope that we may be able to obtain some fundamental information which will eventually lead to greater efficiency in the use of fertilizers.

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BEAN-HIGH PRESSURE SPRAYER—\$464.00 2 CYL-10 H.P. Hercules motor—300 gal. steel tank—15 g.p.m. underlines on rubber—V-belt drive. Used 150 hrs. Priced right. STEVE McMAHON, Rossos, Mich. Tel. 187 P 11.

FOR SALE: CATERPILLAR TRACTOR "22" MOTOR just completely overhauled. New tracks and drive sprockets just installed. In excellent condition. Guaranteed \$1500.00. Refer AMERICAN FRUIT GROWER BOX 103, 1370 Ontario St., Cleveland 13, Ohio.

FOR SALE: WAYLAND COMBINATION APPLE AND peach grading machine with Treaded brush, practically new. Capacity 2500 bu. peaches, 1500 bu. apples per day. Three electric motors, two, one and one-half, and half horse power included. Less than half price of a new machine. Price \$1500.00. Guaranteed. Refer AMERICAN FRUIT GROWER BOX 104, 1370 Ontario St., Cleveland 13, Ohio.

FOR SALE: JOHN BEAN TREE SPRAYER, MOUNTED on Rubber Tire Trailer, 100 Gal. Capacity. Motor and pump in very good condition with 250/ horse. Price \$400.00. NORTHERN TREE EXPERT CO., P.O. Box 174, Appleton, Wisconsin.

FOR SALE: FORD TRACTOR WITH PERQUON HYDRAULIC SYSTEM lights and starter. In excellent condition. Price \$800.00. NORTHERN TREE EXPERT CO., P.O. Box 174, Appleton, Wisconsin.

3-500 GALLON HARDIE SPRAYERS ON RUBBER with 30 G.P.M. Pumps, 1 Electric-Crawler Tractor. C. E. OPPERMAN, Birmingham, Ohio.

ORCHARD EQUIPMENT FOR SALE—BEAN SPEED Sprayer and Supply Wagon on rubber. Excellent condition \$1000.00. HARDIE SPRAYERS—400 Gal. Tank, 35 Gal. per minute on rubber with spray boom. Good con-

dition \$300.00. McCormick BIKING TRACTOR on Rubber. Model 10-30. Excellent condition \$300.00. PARK ORCHARD, INC., Box 100 Everett, Ohio. Tel. West Highland 312.

APPLE CRATER TAKING ORDERS. HAMPE on request. GRAHAM PARROTT CRATE CO., Nashville, Michigan.

USED FRIEND ORCHARD SPRAYER, 300 GALLON tank, 4 V Wisconsin Motor, mounted on Model A truck. WALTER J. PLETCHER, Route 2, Syracuse, Indiana.

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NEW MASSEY HARRIS PONY TRACTOR WITH mounted plow and disc, save \$200! MASSEY-HARRIS Standard Model 22 with belt pulley, used 100 hours, save \$300! ROME HILL ORCHARD, Newport, Ohio.

JUST OUT! GET LARGEST AUTO ACCESSORY and parts catalog in world. Over 13,000 items, including Holly-wood accessories, hi-speed equipment, rebuilt engines; all parts and accessories for all cars, trucks, New, used, rebuilt! We have that hard to get part! Completely illustrated, jam-packed with bargains. Send 25c. J. C. WHITNEY CO., 1019-CX Archer Ave., Chicago 16, Illinois.

HARDIE SPRAYER WITH 25 GAL. PUMP, WAUKESHA Engine. Has used 2 1/2 years and in excellent condition. Includes Sprayrite Boom and Reel \$1200.00. YOUNG'S ORCHARD, Route 4, Springfield, Mo.

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PURE HONEY: THE VERY "ESSENCE OF CLOVER" Minnesota's finest extracted white clover honey with a mild clover flavor. 5 pound pail \$2.00. 10 lb. can \$3.50. 50 lb. can \$16.00. You pay express. ROBERT E. DENRY, Roseau, Minnesota.

FOR SALE—DELICIOUS HONEY CLOVER OR HUCKLEBERRY. 5-lb. can \$1.35; 10-lb. can \$2.50; 50-lb. can \$10.00. Prepaid. FRED WRIGHT, Airport, New York.

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"HOW TO BREAK AND TRAIN HORSES"—A BOOK for the farmer and horseman should be a part of his obligation. Simply address BERRY SCHOOL OF HORSE-MANSHIP, Dept. 1383, Pleasant Hill, Ohio.

IRRIGATION

IRRIGATION EQUIPMENT—IMMEDIATE DELIVERY of light-weight pipe. Complete systems, including pump, motor and sprinklers. Featuring famous and exclusive Midflow automatic coupling and sprinkler that covers a little under three acres. LUNDQUIST COMPANY, INC., Putnam, Conn.

IRRIGATION, RAIN AGAIN WITH RINNENING. WE are engineers with 20 years experience specializing on irrigation systems for big acreage crops: mint, potatoes, several crops and orchards. Midflow portable irrigation pipe; Skinner sprinklers, pumps. Terms. Write for free Bulletin. Engineers survey free. Farms large or small. We irrigate them all. RINNENING ENGINEERING SALES, Vicksburg, Mich. Phone 5161.

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KEEP HEALTHY AND STRONG—MEN, WOMEN AND Children. Send for circular explains all. Agents Wanted. A. DAGOSTINO, 955 St. John's Pl., Brooklyn 13, N.Y.

LEARN SPRAYING PAINTING, PAPERHANGING. Decorating at Home. Complete guide with 70 diagrams sent postpaid upon receipt of only \$3.05. Nothing else needed. Send today. B. DeFOREST, 5 Alden Court, Delmar, N.Y.

MAKE MONEY ADDRESSING ENVELOPES. OUR instructions reveal how. PAUL GLENWAY, 5713 Euclid, Cleveland 5, Ohio.

WOMEN TO SEW OUR READY-TO-WEAR "RAP-A-ROUND" Spare tire—Easy profitable business. HOLLYWOOD MFG. CO., Dept. 4-3, Hollywood 46, Calif.

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FRUITGROWERS! DON'T PUT IT OFF ANY LONGER, get a real business card for your business. Advertise your product of distinction. 1000 of these cards, with simulated engraving print for only \$5.05. Seven line limit. Use a line for all over. Send NOW! Sorry. No C.O.D.'s. MERSON PRODUCTS, Dept. A, 1913 St. Augustine Ave., Sanford St. Maryland.

WINES—MAKE YOUR OWN FROM GRAPES—Raisins—Berries—Oranges—Dandelion, etc. Easy home method. Printed directions. 25c coin. OZARK ENTER-PRICE, Cel. 0, Mo.

MAKE MONEY! BUILD FLARE TOP WAGON BOXES for yourself and others. Write: OTTO SIMMERMAN, Fairfax, Minnesota.

ORCHARD FOR LEASE

APPROXIMATELY 65 ACRES OF ORCHARD WITH equipment for lease. Party must furnish seed and financial report. Write PARK ORCHARD, INC., Box 100, Everett, Ohio.

ORCHARDS FOR SALE

ORCHARD FOR SALE—FAMOUS "PICK OF THE PACK" fruit farms. 213 acres, six thousand fruit trees, ten thousand cultivated blueberries. Completely equipped packing house and cold storage. Owner's health reasons for selling. Please write for price and particulars. HARRY T. BIGELOW, Bangor, Michigan.

(Continued on page 51)

CORN CENTER DOIN'S



"A small but worthy audience... obviously a man who uses BFG tractor tires is a discriminating buyer, a sound judge of values and a vote worth cultivating..."

Here's the tire with the tread that gives you more power, more traction, more wear. It's the new Power-Curve cleat—exclusive with B. F. Goodrich. This special, curved cleat gives more power, more traction—allows natural self-cleaning. No wonder this great new BFG tractor tire outperformed and outwore other tires in hundreds of tests in different

parts of the country. Before you buy tractor tires, compare the 3 leaders. See all 3 perform. And we feel sure you'll want the extra advantages you get with B. F. Goodrich Power-Curve tread. Stop in and see the B. F. Goodrich retailer the next time you're in town and see how you can save with Power-Curve.

An advertisement of The B. F. Goodrich Company, Akron, Ohio.

FRUIT TREES, STRAWBERRY AND BLUEBERRY PLANTS



A complete line of apple, peach, pear, cherry and other fruits, selected type Chinese Chestnuts and other nut trees, Blueberry, Boysenberry, Strawberry, Raspberry, Grape Vines and Asparagus plants. Over 50 years' production experience guarantees satisfaction. Write for our catalog.

Beautiful Ridge Nurseries, Box F-36, Princeton, Anna, Md.

ORCHARD TESTED FRUIT TREES

We offer only varieties that have been tested in our orchard. We practice hand selection for extra quality, color and vigor, which insures you the very best in variety characteristics. We specialize in Apple, Peach, Cherry, Plum.

CATALOGUE FREE

SIMS FRUIT & NURSERY FARMS

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VANCE DELICIOUS APPLE

The Most Profitable of the Double Red Delicious Sports because of superior color and early maturity, making possible packing and marketing 10 days ahead of other Red Strains at better prices. Write for further information and Free Copy of New 48-Page Planting Guide in full color.

WAYNESBORO NURSERIES

Waynesboro, Virginia

GUARANTEED NEW FRIEND SPRAYER PUMPS 1/3 OFF

HT-2 Cyl. 15 G. P. M.—FT-4 Cyl. 25 G. P. M. LOVE TRACTOR, INC. East China, Michigan

TREE EVERBEARING BLACKBERRY

Grows in any backyard soil or climate. Produces up to six gallons per plant. Earning \$1000.00 per acre for commercial growers. Two year old plants 3 for \$2.75, 5 for \$12.00. Special price and literature on commercial plantings. Other Nursery Stock.

A. E. BOOTH & SON
WEATHERFORD, TEXAS

Rhododendron, Mountain Laurel, Hemlock, Azalea, Dogwood, 2-3 ft., 10 for \$3.00; 25 for \$7.00; 100 for \$25.00. 3-4 ft. 10 for \$4.50; 25 for \$10.00; 100 for \$35.00. Clumps 2-3 ft. \$1.50 each.

JOHN A. SHOUN Doeville, Tenn.

We have 10,000 one-year dormant bud Peach Trees—true-to-name varieties buds cut from our bearing commercial orchards. The best trees that we have ever seen in our thirty years growing trees. Trees straight, well rooted, good caliber and disease free.

Write for special prices to growers.

COCKRELL'S RIVERSIDE NURSERY & FRUIT FARM
Goldthwaite, Texas

The R. L. STONER PEACH

Queen of White Peaches

Plant Patent 798

New Low Prices

Send for Catalog

HALDERMAN'S NURSERY, Tipp City, Ohio

BLUEBERRY PLANTS

★ IMPROVED HYBRIDS

Two-year olds 40c

Three-year olds 60c

FRANK BRAINARD Route 4, Allegan, Mich.

PEACH APPLE TREES LOWAS 20¢

Pears, plants, cherries, nuts, berries, etc. Grapes 10c. Shrubs, evergreens, shade trees 25c up. High grade quality stock cannot be sold lower. Free 48 page color catalog. TENN. NURSERY CO., Box 4, CLEVELAND, TENN.

MARCH, 1950

OPPORTUNITY ADS

(Continued from page 50)

FRUIT FARM FOR SALE—90 ACRES: 75 ACRES WITH 3000 apple trees. Four popular varieties of apples, 3 acres in cherries. Along Macartian road, city water. HALS AGENCY, 149 Lincoln Way East, Chambersburg, Pa.

FOR SALE: A GOOD APPLE AND PEACH ORCHARD. About 1500 peach trees have borne first crop 1949. Brought premium prices. More than 100 acres of fruit. Plenty nearby markets. Write HARRY HIRSH, Benton, Pa.

FOR SALE: 150 ACRES FRUIT AND BEEF CATTLE farm. 100 acres of red Delicious, Winesap and Grimes Golden apples and Elberta peaches. Delicious are the first on the market in the U.S. 75 acres of well fenced pasture, every field naturally watered. Lathia spring water supply. New modern six-room story and half owner dwelling with every modern convenience. Spacious lawn well landscaped. Two tenant houses with electricity and water. Large packing house, cattle barns, new 20x34 barn shop and other buildings. One hundred thousand board feet of pine and poplar timber. Located in southside Virginia on main north-south new concrete highway. Excellent road-side stand. Terms to purchaser. Refer AMERICAN FRUIT GROWER, BOX 102, 1376 Ontario St., Cleveland 13, Ohio.

POSITION WANTED

HORTICULTURE COLLEGE GRADUATE DESIRES research work or employment with fruit company, nursery or large fruit grower. EUGENE SWANE, Route 2, Navarre, Ohio.

POULTRY

PULMONUM CLEAN DAY-OLD COCKERELS: N.H. Red, Barred Rock, and Red Rock \$4.90 per 100. Broad Breasted Bronze and White Holland Poults. Also White Pekin Ducklings. Write today. HAY STATE BAEY CHICKS, Manchester, New Hampshire.

MOTTLED BOUDANS, MY SPECIALTY. BOGS, Chicka, Stock Circular. FRED BRENNON, Box 4, Watertown 15, N.Y.

PEAPOWL, SWANS, PHEASANTS, GUINEAS, DUCKS, Geese—Thirty Varieties Pigeons, Bantams, Stock, Eggs, JOHN HARRIS, Bettendorf, Iowa.

RAISE TURKEYS THE NEW WAY. WRITE FOR FREE information explaining how to make up to \$3,000 in your own backyard. Address: NATIONAL TURKEY INSTITUTE, Dept. 232, Columbus, Kansas.

RABBITS

NEW ZEALAND RED AND WHITE RABBITS TOP Quality. Priced right. JAMES STORHEDNER, Mount Washington, Ohio.

TRADE MARKS

NATIONAL TRADE MARK COMPANY, MUNSBY Building, Washington, D. C.

WANTED TO BUY

LUG BOXES 4000, CUTLER WEIGHT RIEKER OR PATO, Box Makyr, Ladder, Elevator Truss, Nails and Shook for standard pear or apple box. CURTIS BARNER, 29 N. Peach St., Medford, Oregon, Tel: 32398.

OLD COIN, GOLD, SILVER AND COPPER, ALSO OLD United States stamps. Write description and price. WM. M. LEPPARD, 1565 Candler Bldg., Atlanta, Ga.

WANTED—SLIGHTLY USED PEACH AND APPLE grades—50 to 100 bushels per hour packing capacity. RINGING HILL ORCHARDS, Putnam, Pa.

GROW STRAWBERRIES Write for Catalogue and free literature. Also raspberries, rhubarb, asparagus and mushrooms old items. STEVENSON & COX, PERRY, LAKE CO., OHIO

Thin-Shell Black Walnuts

Rapid growers, beautiful shades. Bear second year. Nuts large, easily cracked. Catalog Free.

CONSICANA NURSERY Corsicano, Texas

VALENTINE RHUBARB

New, Red all the way through Divisions ready for shipment

PHILLIPS FARMS, CHATEAUGUAY, P. Q. CANADA

EVERBEARING STRAWBERRIES

All the newest and best varieties.

Fine, heavy-rooted, healthy plants.

Write for 1950 price list.

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HAMILTON, MONT.

BERRY PLANTS

Latham Red Raspberries—Cumberland, New Logan Blackberries, \$3.00—50, \$5.00—100. Raspberries—New Robinson, Premier \$2.25—100; \$4.00—200. Hardy, northern stock, French, etc. State certified disease free. Directions included. Free catalog.

STEVENSON'S BERRY ACRES
Route 3-N
Tonia, Michigan

OLD HOME PEAR (blight resistant)

Now for the first time available in quantity lots at reduced prices. Also a complete line of fruit trees and small plants all of which are Northern grown. May divert from a grower and save. Write for our free catalog.

CHAMPION NURSERIES
150 MAIN STREET
PERRY, OHIO

GET ACQUAINTED OFFER!

HEAVY BEARING, FAST GROWING BLUEBERRIES



Certified, early, mid-season, late varieties. FREE LITERATURE. Wholesale prices—Special offers—Cash discounts. Write for prices.



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126 Chew Rd., Hammetts, N. J. Largest in N. J.

Guaranteed Nursery Stock CATALOG FREE

Big 1950 Catalog of Baldwin's Guaranteed Nursery Stock. 60 years' experience. Best varieties of Tree Fruits, Raspberries, Blueberries, Grapes, Asparagus, Roses, Shrubs, Nut Trees, New Fairland and Superfection Strawberries. Reduced prices—Special offers—Cash discounts. Free illustrated catalog. Write today.

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DWARF FRUIT TREES

We offer the best berry-producing varieties, also standard fruit trees, strawberrries, raspberries, blueberries, grapes, peaches, shade and nut trees, ornamentals. You can rely on Miller's. Buy by the dozen or by the more experienced customer satisfaction. New catalog describing and illustrating everything fully. Write TODAY for Free Copy.

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Dependable Fruit and Nut Trees, Small Fruits, Ornamentals, and General Nursery Stock. Write for Free Color Catalogue.

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FRUIT TREES

We specialize in growing High Quality Nursery Stock for Fruit Growers. A complete line of Fruit and Nut Trees, Berry Plants, Roses, Evergreens and Flowering Shrubs. Write for colored Catalogue with Money Saving Prices.

EAST'S NURSERY
BOX 450
AMITY, ARKANSAS

CERTIFIED CULTIVATED BLUEBERRY PLANTS

Wholesale & Retail

15 VARIETIES

Order Now for Spring or Fall Planting

MONROE FARMS

Box 555, Browns Mills, N. J.

Member of the Blueberry Cooperative Association

SPECIAL! SOUR CHERRY TREES

Montmorency, 2 Year 5 1/2 inch caliber, Good quality, 2 to 3 ft. high. Try 10 at 60c each.

Write for circular \$55.00 per 100 prepaid on other fruits

MAYO'S BEVERLY NURSERIES
Pittsford, New York

High Quality FRUIT TREES

FOR FRUIT GROWERS

Apples, Cherries, Peaches

Pears, Apricots, Plums

Introducers of: Gilbert Montmorency Cherry

and Kansas Sweet Cherry

Quotations furnished at any time

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800

Varieties Grapes

Specializing in French Hybrids

Schroeder Vineyard

Hutchinson, Kansas

FRUIT TREES

APPLE • PLUM • PEACH • CHERRY

Orchard Prices—Write for Catalog

CALL'S NURSERIES Est. 1877
Call Road, Perry, Ohio

Ramblings

OF A HORTICULTURIST

Canadian Adventures

LAST AUGUST your Rambling Horticulturist set out to see a part of that sprawling country to the north known as the Dominion of Canada. The farther you penetrate into the reaches of this land, the more impressive becomes the word, Dominion.

It is a vast country, exceeding the United States in size, and its extensive unpopulated areas make it seem even more pretentious. Wildness—and Canada has lots of it—has a way of stirring one's imagination.

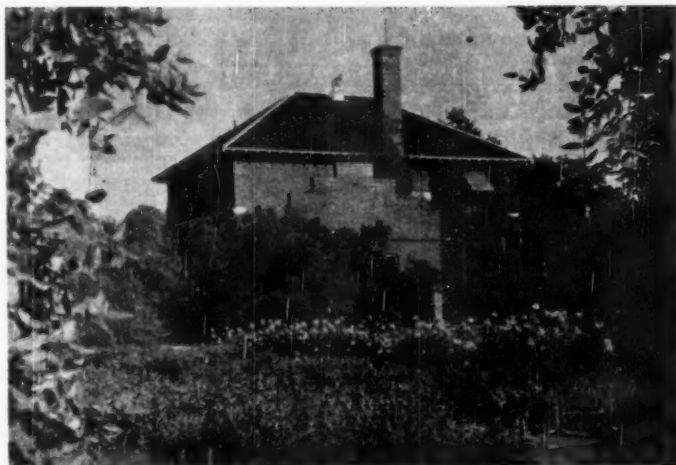
As I crossed into this neighboring country at Windsor, Ontario, I couldn't help thinking how easy it is for folks in this hemisphere to travel from one nation to another. If only the peoples of other, older hemispheres could journey as readily from nation to nation, and with the same degree of understanding, how much closer they would be in thought and purpose. Hate and fear would be replaced with courage and with an appreciation of the problems and hopes and desires for which we are all striving.

But this is no place to reduce world problems to simple terms and expound upon a philosophy of life. We are horticulturists—fruit growers brought together for common interests; therefore, let us consider some of the horticultural aspects of Canada.

Along the north shore of Lake Erie is perhaps the most extensive fruit area in central Canada. It is heavily planted to peaches and grapes because the lake has a tempering effect on the climate.

The traveler passes through an extensive fruit area soon after leaving Windsor and following King's Highway Route 3 going eastward.

The area between Niagara and Hamilton, Ontario, is decidedly a



The main horticultural building at the Dominion Experiment Station at Vineland, Ontario, is situated in the midst of a very beautiful semi-formal garden.

fruit section, with plantings of peaches, grapes, plums, and apricots. It is in the midst of this setting that the Dominion Experiment Station is situated, at Vineland. It is chiefly a horticultural experiment station.

Here, I had the privilege of meeting Dr. W. H. Upshall, director of the station and a very prominent horticulturist. I also visited with Prof. J. R. Van Haerlem, orchard soil specialist at the experiment farm. I asked him why fruit growing had developed so extensively in this area, and his answer was most enlightening.

A long time ago Lake Ontario covered much of the land now cultivated between Niagara and Hamilton. Through centuries of change, the water receded into its present bounds and left a bed of soil consisting of a number of types.

So variegated are the soils in this old lake bed area that a single acre

may have a dozen different types of soil, ranging from fine sand to heavy clays. Drainage is generally good, and the soils are suited to fruit production.

The area is ideal for the more tender fruits, as temperatures drop below zero only two or three times during the winter. Spring frosts occur in damaging proportions occasionally but in general the area is fairly free of this hazard.

Driving west on Highway 8, towards Vineland, the traveler is afforded an excellent view of the contour of the old lake bed and the extensive fruit plantings. The highway in general runs along the base of the escarpment.

And driving to the top one can see for miles around the flat lake bed with its panorama of vineyards and orchards which in August, the time of my visit, were laden with choice fruit.—E.S.B.



"Best tractor I ever used"

SAYS FRANK RAMONDO OF HIS

INTERNATIONAL CRAWLER

Frank Ramondo has good reason to be enthusiastic about his International TD-6 Diesel Crawler tractor. He has used it for more than five years on his 130-acre farm near Sebastopol, California, where he raises apples, cherries, and plums. During this period, the tractor has given Mr. Ramondo economical, satisfactory performance.

It is service like this which has earned International Crawler tractors their reputation for being always ready to go when there's a job to be done . . . and for the low maintenance cost that's so important to low operating cost.

There's an International Diesel Crawler to meet every need. The five sizes range from the TD-6, with power to pull 3 or 4 moldboard plows or their equivalent, up to the giant TD-24, with 140 drawbar horsepower.

Parts and service are right at hand at your IH dealer's, just the same as for the McCormick equipment used so widely in your neighborhood.

To get the full story of dependable, low-cost power with International Crawlers, see your IH dealer, or mail the coupon for free booklets. Convenient payment terms.

SEND FOR FREE BOOKLETS

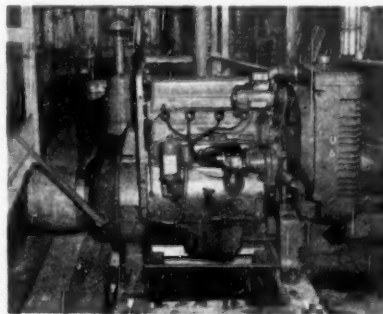


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HARVESTER**

See your IH dealer for IH 5-Star Service . . . better five ways for keeping your farm machines new longer.



Pulling a McCormick heavy-duty disk, Mr. Ramondo's International TD-6 Crawler works 30 acres in a 10-hour day, using only 12 gallons of Diesel fuel.



Here's dependable power for irrigation. The same engines that are used in International Crawler and McCormick wheel tractors are ready to give you the right power for every irrigation pump job. Sizes range from 22 to 180 maximum horsepower. See your IH dealer.

International Harvester Company
P. O. Box 7333, Dept. AFG, Chicago 80, Illinois

Please send me free booklets on the International Crawler tractors checked below.

☐ TD-6 ☐ TD-9 ☐ TD-14 ☐ TD-18 ☐ TD-24

I farm _____ crop acres. Principal crop _____

Name _____

Post Office _____ State _____

My IH dealer is _____

EDITORIAL PAGE

AMERICAN FRUIT GROWER

E. G. K. MEISTER
Publisher

H. B. TUKEY
Associate Editor

Where Lie Our Opportunities?

CERTAINLY NOT in selling fruit to Europe or Asia or other export markets. These markets hold little, if any, promise; and, today, fruit to Europe is nothing more than a relief proposition. Our own domestic market can absorb more of our production, particularly in fresh, juiced, and frozen form. In this direction lie our greatest opportunities, and a means must be found to constantly keep fruit before the American people through the medium of newspapers, magazines, radio, and television.

There are industrial uses to which surplus fruits can be put, and there should be a steady and profitable demand from the processors of animal feeds. If a fruit is wholesome for human beings, it can be equally beneficial in the animal world. "For better animals—feed fruits" might be an effective slogan, and the possibilities for such an outlet for surplus fruits are well worth investigating.

"And I Got Four Cents"

"I SOLD a hundred bushels of apples," said the fruit grower at one of the winter State meetings. "I paid the apple commission a cent a bushel, or one dollar. I got four cents for myself!"

And if the story ended there, it would be a sadder situation than it is. But the grower followed his recital with a resounding and hearty, "Ha! Ha! Ha!"

Now this may seem an unimportant story, but it has deep meaning taken in connection with low prices and rising costs. It would be so easy to become first upset, then frantic, and then be willing to follow the first long-haired, self-appointed leader who came along. This is what history has recorded over and over again. Common sense and clear

thinking disappear, mob rule takes over, and everybody suffers.

But so long as men can accept their unhappy plight in such perspective as to laugh at it, they will come out on top in due time with the proper solution. It may mean marketing agreements. It may mean controls. It may mean more rigid enforcement of grading rules. It may mean legislating poor fruit off the market. It may mean tighter banding together of those who are in the fruit business for keeps. Or it may mean none of these. No matter just now. At least there is time for a bit of thinking and study before action is taken.

Until we can figure out the answers, it is fortunate that the fruit industry can laugh at its troubles.

Supply and Demand

THE CIVILIAN consumption of fresh and processed fruit (the latter computed on the basis of equivalent fresh fruit) was 210 pounds per person in 1949, according to figures from the U. S. Department of Agriculture. This is a slightly smaller amount than in 1948. Fresh fruit consumption was about three-fourths of the total, and the various processed fruits were each slightly smaller than in 1948. The feature of the season was the decrease in the supply of citrus to only 6.6 million tons, and the increase in the supply of deciduous fruit to 16.7 million tons.

Consumption of fresh fruit was 129 pounds per person compared with 131

pounds in 1948, a reduction of 7 pounds per person in citrus being nearly offset by an increase in deciduous fruits. Consumption of canned fruits was about the same as the 1948 rate of 18 pounds per capita.

Canned fruit juice was 15 pounds, or about 3 pounds below the 1948 rate, due largely to short supply. The 1948-49 production of fruit juices was low and the output of pineapple juice from Hawaii was smaller than in 1948. The net result has been a relatively tight situation in the juice market.

Consumption of frozen fruits, fruit juices, and berries exceeded slightly the 1948 rate of 3 pounds per capita. Cold storage stocks on January 1, 1950, were 10 per cent smaller than a year ago, and 17 per cent smaller than the 1945-49 average.

Dried fruit consumption was about the same as the 1948 rate of 4 pounds, but high production plus imports exceeded demands. The resulting situation, especially for prunes and raisins, has not been happy.

Translating these figures into terms of 1950 suggests relatively higher prices for citrus and continued lower prices for apples the first half of the year. Cold storage holdings of apples January 1, 1950, were 51 per cent above those for January 1, 1949, but only 8 per cent above average.

Total stocks of frozen fruits were about 10 per cent smaller on January 1, 1950, than a year ago. Small carry-overs are reported for both frozen cherries and strawberries. Stocks of frozen strawberries may even be exhausted before supplies from the 1950 pack become available.

The interesting point in all of this is to see how the much-disputed law of supply and demand still operates. If anything, it operates with greater speed and delicacy than ever. Each little event has an almost instantaneous effect upon thousands of sensitive scales. A dock strike in Hawaii prevents the movement of pineapple, with the result that less fruit cocktail is packed in California and the outlet for pears, peaches, apricots, and the other ingredients is reduced. A freeze in the Gulf States reduces citrus production which in turn is reflected in increased consumption of deciduous fruits—happily in a high production year for the latter.

It is increasingly important for growers and handlers and processors in all lines to be even better informed, not only of their local situations but also of the many factors operating in all lines in all areas. There is no other way.

Fruit Production at a Glance

	1938-47	1948	USDA Feb. 1, Est. 1950
Thousand Boxes			
Oranges			
Calif., all	48,894	35,910	36,200
Navels & Misc.	19,068	11,910	13,200
Valencias	29,826	25,000	23,000
Florida, all	39,940	58,300	61,000
Early & Mid-season	21,765	32,000	33,000
Valencias	18,875	26,300	28,000
Other States	4,760	4,410	2,860
Total Early & Mid-season	43,701	47,260	48,160
Total Valencias	49,892	52,360	51,500
Tangerines	3,530	4,480	4,400
Grapefruit			
Florida	25,760	30,200	25,000
Texas	18,624	11,300	6,500
Other States	6,144	4,020	5,270
Lemons	13,164	9,930	11,000



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that's meant for you**



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**So good looking . . . so rugged, smooth and powerful . . . so truly
the one car for you, your family and farm**

Here it is—the magnificent new Chevrolet for '50.

In Chevrolet for '50 you get beauty and economy . . . driving and riding ease . . . comfort and safety outstanding in the low-price field.

You get your choice of 14 sleek, smart Styleline and Fleetline body types. Also offered are two great engines and two great drives—the new 105-h.p. valve-in-head engine with Powerglide automatic transmission, and the improved standard

valve-in-head engine with Synchro-Mesh Transmission.

This new Chevrolet brings you all the big-car features that have made Chevrolet rural America's first choice through the years. It brings them to you at their very finest . . . at the very lowest cost!

So visit your Chevrolet dealer today. See the best-looking, most spirited and powerful cars in Chevrolet history . . . the cars that are **FIRST . . . AND FINEST . . . AT LOWEST COST!**

CHEVROLET MOTOR DIVISION, General Motors Corporation, DETROIT 2, MICHIGAN

FIRST . . . and Finest . . . at Lowest Cost!



New 105-h.p. valve-in-head engine with Powerglide automatic transmission is the most powerful engine in its entire price-class. With the stepped-up standard engine, too, you get a power plant that's outstandingly durable and dependable—and a real money-saver to boot!



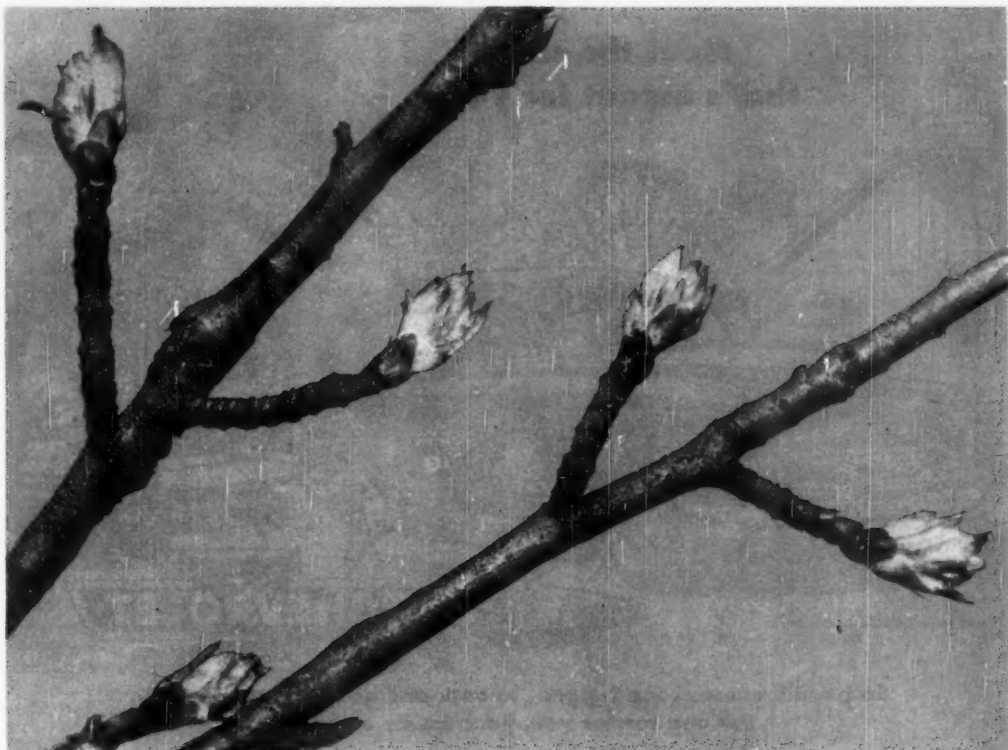
The lasting good looks of Chevrolet's new all-steel Bodies by Fisher jibe with a farmer's idea of car styling. They keep their beauty through years of hard use . . . it's built right into them! Center-Point Steering with Unitized Knee-Action Ride assures easier handling and riding on every road.



Your whole family rides in uncrowded comfort in Chevrolet's roomy interior. Those wide "five-foot" seats and luxurious new two-tone interiors add an extra treat to Sunday drives. And you'll really appreciate Chevrolet's giant-size trunk on those buying trips to town!

Combination of Powerglide Transmission and 105-h.p. engine optional on De Luxe models at extra cost.

AMERICA'S BEST SELLER . . . AMERICA'S BEST BUY



Aphids Hatch as Buds Develop

Serious damage may develop from the aphids that escape late winter "egg sprays". To kill aphids, start spraying with Black Leaf 40 when the buds of your early varieties first show green tips . . . and combine aphid and scab protection as the buds develop.

For aphid-scab control: Green-tip sprays—aimed where hatching aphids congregate and where scab spores must develop—can provide protection without danger of injured buds. Use this proven "combination": 1 pint of Black Leaf 40, 2½ gallons of lime sulphur and 3 pounds of lead arsenate, to make 100 gallons of spray.

To control bud-moth—include Black Leaf 40 in the first (green-tip) spray. A good "combination" is 1 to 2 pints of Black Leaf 40, 3 gallons of oil and 2-4-100 Bordeaux, to make 100 gallons of spray.

Black Leaf 40 is doubly effective—it kills aphids by contact and by fumes that penetrate. Aphids hatch as buds develop. Kill aphids with reliable, dependable Black Leaf 40.

Companion Product: *Black Leaf 155*—a "fixed" nicotine insecticide that provides non-caustic protection against codling moths, leafhoppers, leaf-miners, and summer aphids, without leaving undesirable residue.

Tobacco By-Products & Chemical Corporation • Richmond, Virginia

